A.2

12/22/97

SUPERFUND DIVISION

CONTROLLED CORRESPONDENCE SIGN-OFF SHEET

CONTROL #: R5 97000090 DUE DATE: 12-22-97

SITE NAME: DIAMOND SHAMROCK PAINESVILLE WORKS

SUBJECT: OEPA NOT PROPERLY DOING DUTIES

CONTROL ASSIGNED TO: RRB #2 / RRS #4 / DAVID WILSON

DRAFT

SIGN-OFF

SECTION SECRETARY EO 12-16-97

PREPARER: DW 12/17/97

SECTION CHIEF BB 12/17

BRANCH CHIEF: —

FINAL

SECTION SECRETARY: EO 12-17-97

SECTION CHIEF BB 12/18/97

BRANCH SECRETARY

BRANCH CHIEF for JMM 12/19/97

WILLIAM E MUNO, DIVISION DIRECTOR.

WEM 12/22/97

— changes needed to the letter
JM 12/18/97

AR
12/22/97

Controlled Correspondence For
REGION 5

CONTROL NO : R5-9700090
ALT NO:

EXT. DUE DATE:
ORIGINAL DUE DATE: 12/22/97
CORR. DATE: 11/25/97
REC. DATE: 12/08/97
CLOSED DATE:

STATUS: PENDING

FROM: RUSSELL M BIMBER - OH

ORGANIZATION: PRIVATE CITIZEN, PRIV CIT

SALUTATION: DEAR MR. BIMBER

CONSTITUENT:

TO: ULLRICH/DAVID A

TO ORG: ACTING REGIONAL ADMINISTRATOR

SUBJECT: OEPA NOT PROPERLY DOING DUTIES/DIAMOND SHAMROCK PAINESVILLE WORKS

SIGNATURE: DIVISION DIRECTOR

CC'S: ORA READING FILE, ORA W/CONTROL SLIP, SHIRLEY DORSEY

ASSIGNED: SF

R5 INSTRUCTIONS:

R5 ADDTN'L INST:

R5 COMMENTS:

	Assigned	Date Assigned	Code/Status	Date Completed by Assignee	Date Returned to R5 :
Lead	SF	12/08/97	ACTION	-	-

Non-responsive

CERTIFIED MAIL-- RETURN RECEIPT REQUESTED

David Ullrich, Regional Administrator
USEPA, Region 5
77 W. Jackson Blvd.
Chicago, IL 60604-3590

Nov. 25, 1997

At the Recent IJC Forum, I promised to send evidence that Ohio EPA is not doing the RI/FS (Remedial Investigation/Field Study) of the former Diamond Shamrock Painesville Works properly. Here it is.

Also, I request that District 5 USEPA take over this investigation, or at least the portion of it which concerns a one acre hazardous waste landfill (hereinafter, Site) on the brink of Lake Erie.

Maxus Energy, a subsidiary of the Argentine oil company YPF, and the Occidental Chemical Corporation share liability for past operations by Diamond Alkali and Diamond Shamrock here. Maxus wrote the RI/FS Work Plan, which Ohio EPA approved after a few drafts, even though it retained errors that I have repeatedly pointed out to Teri Phillips/OEPA, Paul Dugas/Maxus, and members of the Diamond Shamrock Community Relations Team (DSCRT).

1. The RI/FS says OEPA does not know whether an abandoned tankcar and a large ball-shaped above ground storage tank (AST) are full (Attachment 1)! The plant closed at the end of 1976, except for one operation closed in June 1977. OEPA has been investigating it at least since 1980, so this is inexcusable!

In March of 1995, I took the photograph on Attachment 1; note the four reinforcing bands around the car, and discoloration, evidence of corrosion, suggesting probable use for chlorinated materials. OEPA should have seen these the first time it checked the Painesville Works, and promptly determined whether the car was empty, or might be a major hazard!

Also in March 1995, I looked through a 2" pipe opening low on the north side of the AST (gas ball), and saw lots of light coming in higher up. I couldn't see the bottom, so there might be rainwater and/or nonvolatile residue there. OEPA should have seen the 2" opening too.

People in the Lake County Health Department said they were told the samples called for in the RI/FS were taken before the end of October, but they did not know whether there was anything in the tankcar. (This sampling revealed a lot of sludge, and perhaps 1000 gallons of liquid, yet to be identified and quantified.)

2. A DSCRT newsletter mistakenly said the dissolved and suspended solids in the wastewater from the soda ash plant amounted to 400 tons/day. More than a year ago, I corrected that to 4000 tons/day at a DSCRT meeting. The plant capacity was 2400 tons of soda ash per day during the last two decades of production, so calcium chloride alone would exceed 2400 tons/day. Teri Phillips and Paul Dugas both agreed

that 4000 tons/day was correct, yet the RI/FS recently placed in local libraries repeats the erroneous 400 tons/day (Attachment 2).

3. Based on prior practice, it appears that Maxus will be doing, or contracting, most of the sampling and analyses at the Painesville Works. **This is wrong!** Agents of the company bearing potential liability should not be allowed to do this work because it is an obvious conflict of interest. They should have to pay the cost, so they should be allowed oversight, but should not control the work. (Both Diamond and Maxus have tried to mislead EPA about buried tankcars of chlorinated solvent, as I will explain later.)

4. The RI/FS mentions only small quantity laboratory wastes in a one acre landfill that, **based on lists Diamond gave OEPA,** contains 3 to 3.5 *million pounds of hazardous chemical waste that is mostly from full* **commercial scale operations!** Compare Attachment 3 with what follows!

Attachment 4 consists of 1968 interoffice correspondence which says burials at this Site began in 1965, and were limited to laboratory wastes. It includes a seven page list of materials buried.

Attachment 5 consists of a 1981 letter with a photocopy of 1968 Operating Procedures and a 9 page list of (mostly) additional burials from 1963 through 1970. **Page 3 lists 30 drums and 5 cars of hexachlorobutadiene on 11/4/64. Was this the reason for a new policy, restricting the site to laboratory waste, starting in 1965?** (Both Diamond and Maxus have argued that "cars" should have been "cans", but I don't believe that, as I will explain later.) **Page 7 lists 516 drums of Chlorowaxes and more than 57,000 gallons of "In Process CCl_4 Materials" on 8/17/70; these are undeniably wastes from full commercial scale operations.**

I prepared a quarter page summary of the sixteen pages of lists; it was included in the handout I distributed after my brief talk at the recent IJC Public Forum (Attachment 6). Half the waste is from commercial scale operations, and another quarter is from semicommercial work. About two thirds is chlorinated solvents, most of which is in tanks holding 4000 to 18,000 gallons. **I believe these tanks should be pumped out for more proper disposal elsewhere.**

The proximity of the burials to Lake Erie is shown on an aerial photo (Attachment 7). The burial area is about 250 feet square, with a "U" shaped roadway around its southern half, inside a fenced area of about four acres. The road is used to haul away groundwater pumped from the southern part of the Site. Lake Erie begins 100 to 200 feet from the northwest corner of the burial area. Three potable water intakes 2.5 to 3.5 miles away serve 65,000 people. A breakwall-sheltered swimming beach favored by mothers with very young children is just a mile west. The most used swimming beach on Lake Erie (Headlands Beach State Park) is a mile farther west. (On hot summer days, HBSP has more than 50,000 visitors per day.) All these are shown shown on a map enclosed as Attachment 8.

In 1983, the Plain Dealer reported OEPA sampling of iron-stained seepage from the Site, just below the headwall of a drain going under deteriorating gabions (Attachment 9). This is now concealed under a

more substantial erosion barrier, with an additional underdrain farther east and two surface water drains bathing the slope above it.

5. Diamond Shamrock tried to mislead EPA about this Site. If the 27 numbered statements and accompanying documents concerning the Site were true, accurate, and authentic, someone having prior involvement with the Site, such as any of those named in the 1968 memos, should have signed the page enclosed as Attachment 10. The landfill was conducted by unionized employees and supervisors from the Painesville Works, not by (nonunion) people from Research. Non-responsive was from Research and had no prior involvement with the site.

The 27th statement said the term "car" is probably a typographical error, as there was no physical way to bring a railroad tankcar to the Site. I believe "car" was not a typographical error, for reasons partly explained in page 2 of Attachment 11. Getting a loaded tankcar to the Site was easy, as I will explain later.

Non-responsive is near death, so please don't bother him or his wife. My wife and I and two other couples were guests in the Non-responsive home for bridge when [redacted] complained strongly, shortly after being pressured into signing that document. I can identify the other guests if you want to check with them. Perhaps you should ask some of the people named in the 1968 memos if they are willing to sign the document.

6. Maxus Energy tried to mislead EPA about this site. In the newspaper article enclosed as Attachment 12, Joe Phoenix of Maxus said they had done a magnetic survey which failed to detect any tankcars in the site-- but he also said, "A railcar measures about 85 feet by 15 feet by 15 feet.". In fact, railcars are much smaller than he said, and are typically like the one I photographed on the Site; it had a tank about 8 feet diameter by 28 feet long-- about 10,000 gallons. This tank could contain about 70 tons of chlorinated solvent, which would make the gross weight of the car near the 100 ton limit.

EPA should ask Maxus for a copy of the magnetic survey. It should reveal the locations of the tanks used to bury the "In Process CCl_4 Materials". It might also reveal some 28 foot long unknowns that Maxus considered too small to be tankcars. A former crane operator for Diamond told me he used to lift derailed cars-sans wheeltrucks- onto spare wheeltrucks pre-positioned on the tracks, because it was easier and safer that way. In interpreting the magnetic survey, one should expect tankcars to have been buried without wheeltrucks.

7. Attachments 10 & 11 both include the statement, "-there was no physical way to bring a railroad tankcar to the site." That is false. Diamond had a railroad crane that could lift 100 tons. Filled railcars were limited to 100 tons because each car had two wheel trucks rated at 50 tons. Diamond also had a rubber tired crane that could lift 100 tons. A crane could lift a railcar onto a trailer like those used to move houses; the trailer could travel less than 1000 feet on either of two existing roads to the Site, then the rubber tired crane could lift it off and lower it into the hole. Moving heavy objects, even the size of Joe Phoenix's hypothetical railcar, was common at the Painesville Works. Diamond did not object to a 1983 Plain Dealer story about more than five tankcars buried at the Site (Attachment 13).

8. After the end of a 6/1/95 meeting on the Painesville Works, called by the Ohio Department of Health, I told Joe Phoenix that I was puzzled by the lack of acidity in Maxus' water samples pumped from the hazardous waste landfill. Then he told me so much clay had infiltrated the well screens that they kept raising their intakes, and could be sampling above the burials! (That would invalidate a lot of information in OEPA files!) Teri Phillips attended the same meeting, so I relayed this to her minutes later on the sidewalk outside Fairport City Hall, where the meeting was. I've heard nothing about any old data being questioned, or of OEPA being present for future sampling at the Site.

9. I've asked Teri repeatedly whether OEPA or anyone else has sampled lakewater close off the landfill for the chlorinated organics reported to have been buried there. She won't say, but talks about results of Maxus' sampling in wells near the site. The clay bluff by the Site is extensively cracked, so Lake Erie could be contaminated by pathways that don't go through the test wells. **I insist that lakewater be sampled.** Recent ODH analyses of potable water samples have a routine detection limit of 0.5 PPB for HexaChloroButaDiene. This would amount to more than 50 billion molecules of HCBD in a single drop of water (Attachment 14). The detection limit should be lowered to a part per trillion if reasonably achievable. I would like to have such an analysis compared with raw water samples taken from the intakes of Painesville's water plant and Lake County's Bacon Road plant at nearly the same time. This would help establish whether any chlorinated solvent found was from this landfill.

I could go on, but you should have more than enough to judge my request that USEPA take over the investigation of Diamond's Painesville Works, or at least the "one acre site". Four acres is fenced, and at least ten acres needs to be restricted to protect the Site.

Sincerely,

Non-responsive

Vol II App E, ca 1/8" after p 1-2.
Attach. 1
RI/FS-OEPA

Two soil borings will be drilled to collect surface and subsurface soil samples. Groundwater monitoring wells will be installed in these borings. The following describes the locations of the borings:

- Soil boring SW2-1 will be drilled in the western portion of Study Area 2 to characterize soil and groundwater quality near the former coke ovens.

- Soil boring SW2-2 will be drilled in the central portion of Study Area 2 to characterize soil and groundwater quality near the former coke oven gas cleaning operations that generated coal tar residues.

Samples will be collected and analyzed from any tank found on Study Area 2, including one sample (RC2-1) from the railroad tank car and one sample (GB2-1) from the large ball-shaped above ground storage tank (AST). It is currently unknown at this time if the car or AST (gas storage vessel) are holding any material or what difficulties may be encountered to collect a sample. Any difficulties obtaining samples will be discussed with the Site coordinator at the time of activities.

For quality control, one surface soil duplicate, at least one subsurface soil duplicate, and one groundwater duplicate sample will be collected for each analytical parameter. One MS/MSD pair will be collected for surface soil and groundwater. A minimum of one MS/MSD pair will be collected for subsurface soil. One groundwater field blank will also be collected for Study Area 2.

Table 3 summarizes the Phase I and analysis plan for Study Area 2.

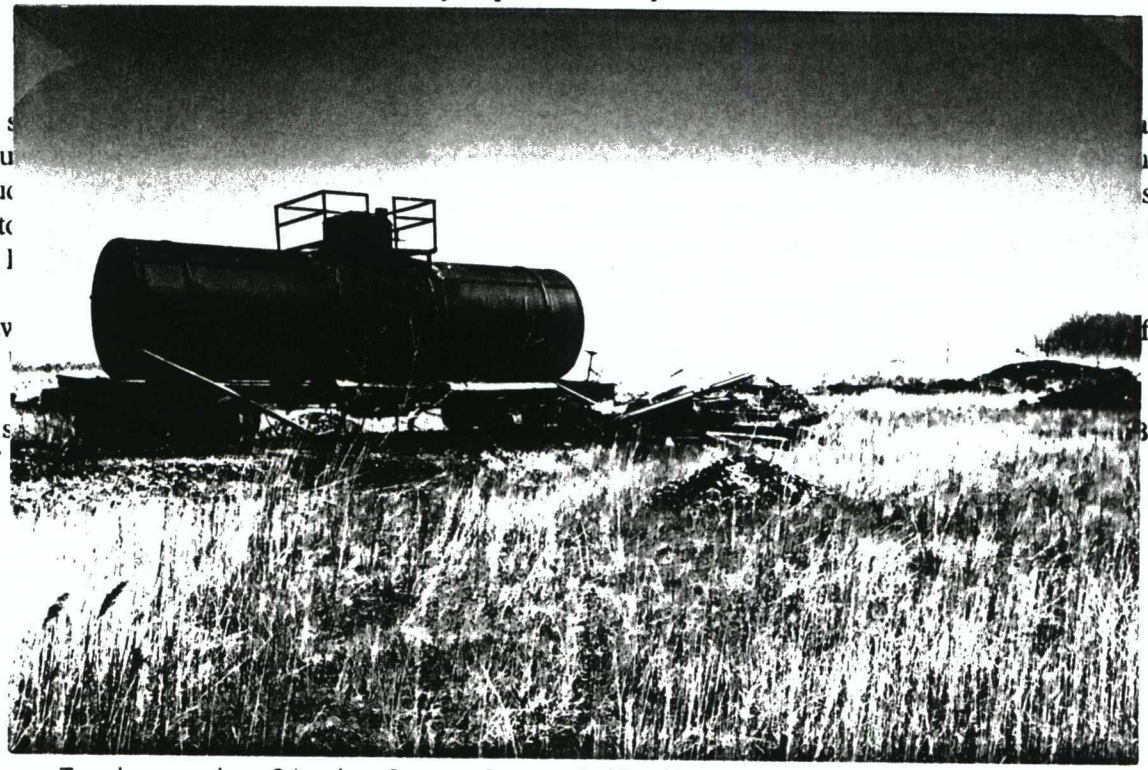
6.3

Four s areas
surrou ndfill
in Stu sting
monit One
Acre l

The tv from
these

Two s 3-2.
Soil soil
borii Erie
shor

Six s rry
wall two
outsi een
posit ing
desc



Tankcar in Study Area 2 on 3/24/95; photo by R. Bimber
Right end is derailed & track away from car torn up
Old riveted, corroded tank, 4 reinforcing bands
Undercarriage perforated by rust +/or corrosion
(Newer tankcars are welded, not riveted.)

- ater

hydrochloric acid (pickle liquor);
Chlorowax™ (chlorinated paraffin wax);
portland cement;
vinyl chloride monomer (VCM)
poly vinyl chloride (PVC);
metal smelting; and
various commercial and light industrial operations.

The various manufacturing processes in Study Area 1 were brought on-line at different times during the operational life of the facility. The following is a list of the production processes conducted in Study Area 1 and their accordant dates of operation:

soda ash	1912 to 1976
caustic soda	1925 to 1976
portland cement	1925 to1956
chlorine	1930 to 1972
carbon tetrachloride	1933 to 1976
chlorinated paraffins	1944 to 1977
liquid hydrogen production	1956 to 1977
vinyl chloride/monomer/polyvinyl chloride	1946 to 1976
metal smelting	1980 to present
scrap metal recycling	1979 to present

Soda ash production using the Solvay process was the primary manufacturing operation engaged in by DSCC at the Site. In 1910, the first brine wells were installed to recover salt for soda ash production. The Soda Ash Plant was constructed in 1912. Salt (in the form of brine pumped from solution wells on the Site), limestone, and coke were used as raw materials in the Solvay process. The Solvay process consisted of reacting water, ammonia, limestone and carbon dioxide to form sodium bicarbonate, which was filtered out of solution and roasted to form soda ash. Ammonium chloride by-product formed in the process was reacted with lime, converted back to ammonia and returned to the process.

The primary by-product generated in the Solvay process was water that contained an average of 400 tons/day of calcium chloride, sodium chloride, sand (silica), ash, unreacted limestone, calcium and sodium carbonate. It has been estimated that for each ton of soda ash produced, approximately 1 ton of calcium chloride, 0.5 ton of sodium chloride and 2,600 gallons of water were produced as by-products (Diamond Shamrock, various). Throughout the Site's operational life, the Solvay process residue was pumped to settling basins located in Study Areas 1, 4, 6 and 7 to permit gravimetric settling of suspended solids. Later, the clarified effluent was pumped to the Hydroretention Basin in Study Area 5 where additional settling occurred prior to permitted discharge to the Grand River. Soda Ash capacity was 2400T/day after mid 1950's - R.B.

4000 not 400

Samples of the settled Solvay process waste material were collected by DSCC from Study Areas 4, 6, and 7. Analytical results, as reported on data sheets dated 1925, 1930, May 1942,

Att 3a

current lease holder) and was the former Diamond Shamrock Portland Cement Plant. This study area is situated north of SR 535 and south of Lake Erie. It is bordered on the west by commercial and residential property and on the east by the western edge of Study Area 2 and the Mitchell Transport Company property line. This area is also referred to as the Main Production Area.

- Study Area 2 consists of approximately 41 acres, is currently owned by Ace Lakefront Properties and is the location where coal coking operations were conducted by first Diamond Shamrock and then Erie Coke and Chemical Company (now known as Scepter Management Corporation). Diamond Shamrock coking operations ceased in 1976, and Erie Coke and Chemical Company ceased operations in 1982. This study area is situated north of SR 535 and south of Lake Erie. It is bordered on the west and south by Study Area 1, on the east by Study Area 3 and on the north by Lake Erie. This area is also referred to as the Coke Plant.

- Study Area 3 consists of approximately 39 acres of undeveloped land and includes a closed landfill, approximately 1 acre in size, which is situated in the northwest quadrant of this area. Laboratory materials from off-site Diamond Shamrock research operations were placed there. This study area is situated north of SR 535 and south of Lake Erie. It is bordered on the west by Study Area 2, on the east by property owned by Mitchell Transport, Inc., on the south by Study Area 1 and property owned by the Dartron and on the north by Lake Erie.

- Study Area 4 consists of approximately 185 acres of dry land formerly used as a settling basin for the treatment of Solvay process residue (essentially limestone fines and chlorides suspended in water) generated by the soda ash manufacturing operation in Study Area 1. Waste pickle liquor (the local steel industry, including LTV Steel and its subsidiaries, used waste HCl to clean steel surfaces) was disposed of there in the past, as was fly ash and bottom ash from coal combustion to generate power (by CEI and Diamond). The Village of Fairport Harbor operated a municipal landfill on a small part of Study Area 4, and dredgings from Study Area 5 (discussed below) were placed along the eastern edge. Presently, several small industrial and commercial businesses operate within the northern and western study area boundaries, and the Fairport Harbor School Board operates two baseball fields in the southwest. This study area is situated north of the Grand River and south of SR 535. It is bordered on the north by SR 535 to the west by East Street, to the east by Study Area 5 and to the south by the Grand River. This area is also referred to as Settling Basin #3.

- Study Area 5 consists of approximately 29 acres of dry land formerly used as a secondary settling basin for the treatment of Solvay process residue generated by the soda ash manufacturing operation in Study Area 1. This study area also received 70 to 90 million gallons per day of non-contact cooling water from the Solvay process and Power Plant. The other relatively low volume process waste streams were combined with the high volume cooling water stream and the storm water runoff from the plant (see Section 2.1.3.1 for more details). This study area contains demolition debris from the demolition of buildings in Study Area 1. This area is situated north of the Grand River and south of SR 535. It is bordered to the west by Study Area 4 and to the east by Study Area 6. This area is also referred to as the Hydroretention Basin.

RIFS Vol I, ca 1/8" from front
att 3b

DSCC operated the Coke Plant from 1924 to 1976 and produced coke for use in its own production processes and for sale to foundries. By-product ovens were used to recover ammonia, gas and tar distillates from the coal coking process. The ammonia was used in the manufacturing of soda ash by the Solvay process. The gas was used on-Site and sold as fuel for domestic heating. The tar distillates were refined into benzene, toluene and other related hydrocarbons for sale to third parties.

The Coke Plant as well as the 41 acre parcel on which it was located was sold in 1976 by DSCC to the Erie Coke and Chemical Company ("Erie Coke") which continued to operate the Coke Plant. Erie Coke produced approximately 425 tons of coke per day. Erie Coke's improper storage of chromium contaminated iron oxide fillings and coke tar decanter sludge (a listed hazardous waste, "K087") resulted in violations of RCRA regulations. Wastewater from Erie Coke's operations contained ammonia, cyanide, phenols, oil and grease. The sludges from the leachate from the chromium-contaminated iron oxide filings tested EP Toxic for chromium (7.5 mg/L) on February 6, 1984; the EP Toxicity threshold level for chromium at the time was 5 mg/L.

Scepter Management through its predecessors-in-interest, Mercier and Erie Coke, halted operation of the Coke Plant in 1982 and in 1984 sold the facility and the parcel to National GG Industries ("National GG"), a salvage company, which began demolition activities. Violations of federal, state and local environmental regulations related to the unpermitted storage of hazardous wastes were recorded during the demolition. National GG employees were observed burning tarry materials and wood in this area on at least three different occasions. In addition, approximately 40 tons of iron oxide fillings and two tons of coke tar decanter sludge were left on-Site.

Ace Lakefront Properties is the current owner of Study Area 2. This area is currently vacant and many partially demolished structures remain on-Site.

In summary, aqueous and solid by-products generated by the operators and subsequently managed by the owners of the Coke Plant contained a variety of organic compounds from simple benzene ring compounds (e.g., phenol, naphthalene) to complex ring structures (e.g., benzo(a)pyrene) as well as inorganics naturally occurring in coal.

2.1.3.3 Study Area 3

Study Area 3 consists of approximately 39 acres that includes a closed landfill approximately 1 acre in size, which is referred to as the One Acre Landfill. Between 1963 and 1970, this landfill was constructed in an area of glacial till clays. The clays extend approximately 70 feet below the surface to the underlying bedrock. A variety of mostly lab pack (generally less than 5 gallon containers) sized containers of laboratory materials were disposed here. An extensive list of the materials placed in the One Acre Landfill was provided in Chemical Land Holdings, Inc., on behalf of Occidental Chemical Corporation ("OCC")[1], response to Ohio EPA in response to its request for information pursuant to Section 104(e). See Appendix H (Item VI) for the list of materials disposed in the One Acre Landfill. ca 1/4" into Appx H. Has only pp 3 + pp 5 of the 9pp list from the 1981 letter John Licata/DS sent to OEPA.

error
R Bamber

[1] OCC is the successor (by merger effective November 30, 1987) to DSCC.

Att 4a

Library

March 15, 1968

TO: Mr. M. O. Kirp

FROM: Mr. S. O. Lant

SUBJECT: Restricted Chemical Waste Disposal Area East of the Coke Plant.

A meeting was held in the writer's office on Friday, March 1, 1968, on the subject of past and future operation of the Restricted Chemical Waste Disposal Area located east of the Coke Plant. Those attending the meeting were:

Painesville Works - S. O. Lant, A. V. Graculis, A. J. Posso

Cleveland Office - W. R. Taylor, R. D. Hall

Research and Development - Fred Seela, David Harrington, William Gallup

Semi-Works - Jim Browne

The first phase of the meeting was devoted to the past and future operation of the Disposal Area. The salient points of this discussion were:

1. It was originally expected that the Restricted Disposal Area would have a life of approximately ten years. We are now in the third year of its operation and approximately 40% of available space has been used. At the present rate of use, it is estimated that we may have less than 15 months of future capacity. Summary of past records is attached.

2. Other means of disposal must be found prior to "using up" present area.

3. The need to "tighten up" present operating procedures and some of the labor problems that have been generated due to our present procedures.

4. Preparation of "Operating Procedures" for the future use of this area. Draft copy is attached. — Try to limit undisturbed ground between burial holes to 2 ft and minimize areas used, but no mention of placing drums on end or stacking. The best known data (1968) consumed over 10 ft²/drum, so they are probably on their sides, just as rolled into burial holes. — RB 3/03/96 Two people present during some burials confirmed this - single layer, on their sides, so open head drums were likely to crush and pop off heads. — R.B. 11/97

EXHIBIT

att 4b

RDH

November 25, 1953

TO: Mr. S. O. Lent

FROM: A. V. Grazulis

SUBJECT: Burial of Waste Material.

The attached report by A. J. Fosso gives the details of Waste Material burials which took place in 1953. The procedure for carrying out the operation was satisfactory to all concerned.

It appears that there will be sufficient room to continue the operation through 1959. After that, we will have to provide new arrangements.

A. V. Grazulis

A. V. Grazulis

AVG:so
Attach.

cc: Mr. J. J. Browne
Mr. H. E. Case
Mr. D. E. Harrington
Mr. J. H. Shaffer
Mr. W. R. Taylor
Mr. M. O. Kirp
Mr. P. D. Hall

OERA-RB

EXHIBIT 1

att 4c

November 19, 1968

TO: A. V. Grazulis

FROM: A. J. Ronso

SUBJECT: Burial of Waste Material at
Restricted Disposal Area - East of Coke Plant.

During 1968, waste material from our Research Labs-Concord, Semi-Works - Ashtabula and Electronet Complex - Chardon was buried at the restricted chemical waste disposal area, east of the Coke Plant. The material was disposed of without incident on the following dates:

April 23, 24 and 25

July 16, 18 and 19

November 4, 5, 6, 7 and 8

A log of the material buried during these dates and past recordings are listed on the attached data sheets along with other pertinent information.

A total of 826 fifty-five gallon steel drums and 107 five gallon steel drums were buried in 1968. This consumed 3,400 square feet or 21.5% of the entire restricted disposal area. Based on these numerical figures, there is approximately 40% of the disposal area remaining for future use or 18-20 months duration based on 1968 consumption. This can be seen on the attached plot plan.

Areas 23-30 inclusive
ca/drum
10 ft²
R. Bimber
3/23/96

Extreme care was exercised throughout the burial operations, adhering to the operating procedures listed by Mr. S. G. Lant in his report of March 15, 1968.

AJRonso

A. J. Ronso

AJRsso
Attach.

OEPA-RB

Att 4a

HAZARDOUS WASTE DISPOSAL AREA EAST OF COKE PLANT

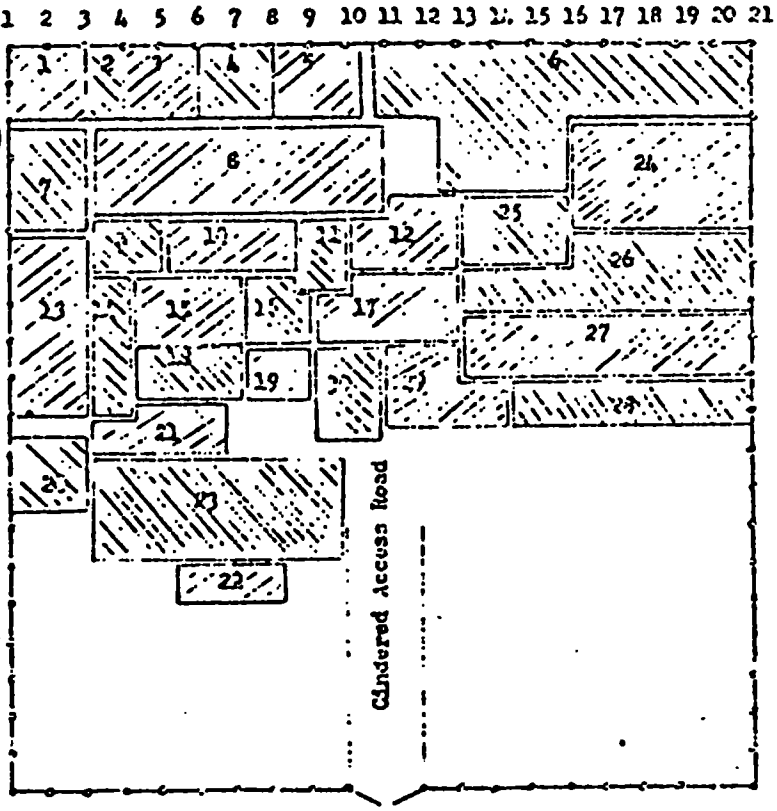
The shaded area below shows the location and area which has been used for the burial of hazardous waste from the Research Center, Ashtabula Steel-works, and Chatrion.

Original area within fence ——— 40,000 square feet (200'x200')
Area between fence posts ——— 10 feet
An area of 20'x20' —— 400 sq.ft. or 1% of fenced in area

Pre-1968:
per Rosso 11/19/68

area #	actual or est. # drms
1	15
2	2
3	9
4	—
5	21
6	6 — 8 (1890 lbs)
7	63
8	198
9	14
10	67
11	14
12-15	—
16	24
17-19	—
20	20
21	42
22	78

1890 # / 2760 ft² = 0.684 lb/ft² unreasonably low use! ~ 35-40 lb/ft² typical at 1 drum/10 ft² — RB.



Year 1968:

23 and	183 89x5gal
24	86
25	49+3x5gal
26	123
27	72
28	92
29	72
30	60

Tech Staff Feb date, originally drawn with fewer numbered areas + accompanied Lantis 3/15/68 memo. — RB.

OEPA-A

66
-65
-67

[illegible] Disposal Area.

[illegible]		Area #	Material Buried	
[illegible]	[illegible]abula	1	15 Drums of Dina Polysulfide	A solid material - very [illegible] - [illegible] ([illegible]) may evolve.
2/3/66	Research (ON 9 Pg list)	2	250# Waste IPN and Daconil 2787	IPN - a solid material, water soluble, [illegible] (Isophthalo nitrile). 2787 - a fine fluffy material, water soluble, [illegible] eye irritation & skin rash - should be [illegible]
2/[illegible]/[illegible]	Research		275# Setup PVF Resin	PVF - a solid material non-toxic but at high [illegible] (approx. 500°F.) can decompose & evolve fl[illegible] compounds.
[illegible]/27/[illegible] [illegible]/[illegible]/[illegible]	Research Research (ON 9 Pg list RB 1-14-96)	3	1800# Waste IPN and Daconil 2787) 600# Waste IPN and 2787)	Same as above.
2/22/67 2/23/67 2/[illegible]/67	Research and Chardon	4	Paraffins & waxes, Caustics & Phenol Caustics Organic Solvents, Alcohols, Methylates and misc. unknown.	Caustics & Phenol Caustics can cause burns & eye irritation. Organic solvents can cause skin irritation.
[illegible]/[illegible]/6[illegible]	Ashtabula	5	21 Drums of Epitan Waste	Sulfonated phenol formaldehyde - can cause skin irritation (such as burns) and eye irritation.
Jan.-Feb. March May 1965	Research (ON 9 Pg list RB 1-14-96)	6	1350# misc. small samples, 100# Polyacetyl wastes, 20# Ethylene Dichloride, 5[illegible]# Polythi[illegible], 50# Methyl Methacrylate, 20# Dimethyl Formamide, 50# p-1-0-1, 250# Diisocyanate waste.	These are small analytical samples of various toxic organic compounds - they can cause skin and eye irritations and have bio-toxicity characteristics.
9/10/65	Ashtabula	7	63 Drums of Epitan waste, HCBD, HCBD Still bottoms and related materials.	HCBD - Hexachlorobutadiene - a chlorinated organic solid and semi-solid material. Should be treated as a hazardous compound - can cause skin & eye irritations, can decompose slowly and release HCl. Related material should be treated the same as HCBD.
[illegible]-5,6,. 7, 1967	Research	8	198 Drums Daconil 2787 and related material.	Same as #2 above.

0042

OEPA-RB

'67
'66

		Area #	Material Handled	
1/1/67	Whitehall	17	Water Repellent	A liquid material consisting principally of [illegible] aluminum stearate and chrome complexes. May cause skin irritations.
12/6/66	Whitehall	18	Water Repellent	
12/7/66	Research	19	Decenil 2787, Polymerception, misc. of laboratory materials.	Same as #2 and #10.
12/23/66	Whitehall	20	20 Drums of MCBD Still Bottoms	Same as #7.
12/30/66	Research	21	42 Drums of Methyl Chloroform with acetylates.	Organic Solvent - can cause skin and eye irritation.
12/31/66	Whitehall (ON 9 Pd list)	22	78 Drums of MCBD Still Bottoms, Scrap Diablo, Water Repellant, DFM, chlorinated Xylene - liquid and semi-solid.	MCBD - same as #7. Diablo - similar to Cix 70 - non-toxic material. DFM - dion polymerception - same characteristics as #10, it is stable and non-corrosive. Chlorinated xylene - liquid and semi-solid materials - can cause skin irritations and can slowly decompose and release HCl.

OEPA-RB

-67

		Item No.	Material Packed	Remarks
/67	[illegible]ton	9	24 Drums - 3% Chromic Acid in water and weak caustic solution.	The same precautions should be taken with this as with any other acid or alkali.
7, 1967	[illegible]arch and Chardon	10	36 Drums of 2787, 2 drums of Polymercaptans, 23 Drums of misc. material from Research "B" Building.	2787 - same as #2. Polymercaptans - a hydrocarbon polymer with hydrogen (SH) groups attached to it. The same precautions should be taken as with other acids or alkalies.
/2/67	[illegible]tabula	11	24 Drums of MCBD Still Bottoms	Same as #7.
11/3/67	Research	12	Decanil 2787.	Same as #2.
11/13/67	Research	13	PVC, Polymercaptans, Chlorinated Solvents.	PVC - Inert, no handling problem. Polymercaptans - see #10 above. Chlorinated Solvents - may cause skin irritation - should not be directly inhaled - similar in effect to Carbon Tetrachloride.
11/20/67	Research	14	Sludge material from Research "B" Bldg. Comp - mostly 2787, Polymercaptans and unknown configuration of materials.	Same as #2 and #10.
11/1/67	Research	15	Decanil 2787, Polymercaptans, misc. of unknown materials.	Same as #2 and #10.
11/3/67	[illegible]tabula	16	24 Drums of MCBD Still Bottoms.	Same as #7.

OEPA-RB

-68

[illegible] of Material Buried At
[illegible] Waste Disposal Area - [illegible]-Concord.

Date	Number of Drums and Drum Size	Area #	Material Buried	Hazard - Remarks
[illegible] [illegible] [illegible]	65 - 55 Gal.	23	Treated potassium hydroxide (KOH) plus potassium fluoride (KF) with calcium chloride ($CaCl_2$) to form calcium fluoride (CaF_2).	Only if exposed to high acid concentrations.
	52 - 55 Gal. 51 - 5 Gal.	23	Iso phthalo nitrile (IPN) and Daconil 2787 solid material.	Fire hazard - skin and eye irritant.
	29 - 55 Gal. 22 - 5 Gal.	23	Dion Polymercaptan (DPM) waste - solid material- filter papers and salt suspension.	Skin irritant.
	12 - 55 Gal.	23	Acid chrome wastes - Cr^{+3} plus Vitamin K.	Skin irritant.
	16 - 5 Gal.	23	Polyvinyl Fluoride (PVF).	No hazard.
	3 - 55 Gal.	23	Polyvinyl Chloride (PVC).	No hazard.
	22 - 55 Gal.	23	Chloro - organics plus non-burnable organic solvents (solid cyanide polymers, organic arsenic compounds).	Skin and eye irritant - bio toxic.

RB[illegible] notebook 6309
[illegible] used 10-2-67 to 6-12-68

OT 4.8

Totals: 183 Fifty-five gal. steel drums
89 Five gal. steel drums

EPA-RB

-68

Material Buried at
Westbrae Waste Disposal Area - From Research-Concord.

Date	Number of Drums and Drum Size	Area #	Material Buried	Hazard - Remarks
7/24/63	35 - 55 Gal.	24	Treated DCR	Can cause skin and eye irritation.
	8 - 55 Gal.	24	IPN and DACONIL 2787.	IPN is a non-toxic solid. 2787 can cause skin and eye irritation.
7/25/63	43 - 55 Gal.	24	IPN, DACONIL 2787 and carbon catalyst.	
7/29/63	20 - 5 Gal. Pails	25	DCP waste.	
	3 - 55 Gal. Drums	25	Chromium Vitamin K waste.	Skin irritant.
	5 - 55 Gal.	25	Safire waste	
	2 - 55 Gal.	25	P-chlorophenol	
	4 - 55 Gal.	25	PVF & color pigment waste.	Not hazardous.
	5 - 55 Gal.	25	Mixed analytical samples.	
	1 - 55 Gal.	25	DAC-4.69	
	5 - 55 Gal.	25	Trichlorobenzene, DCP, & other hydrocarbons.	
	2 - 55 Gal.	25	Acid chromium waste.	
	13 - 55 Gal.	25	IPN and DACONIL 2787.	As noted above.
	1 - 55 Gal.	25	P-diamine-4, Vanadia, & Alumina catalyst.	
	1 - 55 Gal.	25	Raw polyglycol, DACONIL 4-50, Polymerizable R900 Tabular alumina, alumina & Vanadia catalyst.	
	1 - 55 Gal.	25	Polyacetal, DACAMIN, butylcatechol, Surfactants, and Ionol antioxidant.	
	1 - 55 Gal.	25	NH_4, sodium arsenite, antimony oxide, and Sarcocan acid.	
	1 - 55 Gal.	25	DDT, aluminum stearate.	
	1 - 55 Gal.	25	M - diamine - 4.	
	1 - 55 Gal.	25	Zinc chloride catalyst & M-diamine-4.	
	1 - 55 Gal.	25	Polyglycol.	
	1 - 55 Gal.	25	Isophthalic acid.	

OEPA-R

168

...t Waste Disposal Area.

Date	Number of Drums and Drum Size	Area #	← Material Buried →	← Hazard - Toxicity →
11/1/68	Research			
	9 - 55 Gal.	26	Organic solvents.	Liquid, skin irritant.
	2 - 55 Gal.		Analytical samples.	Various samples- all sealed & placed in steel drums.
	2 - 55 Gal.		Aromatics	Liquids, solids - hazardous if taken internally.
	2 - 55 Gal.		CrO_3 + Acid	Reduced chromic acid compound - water soluble - solid - skin irritant.
	2 - 55 Gal.		Muriatic Acid	Liquid, very diluted - slight skin and eye irritant.
	3 - 55 Gal.		Dion Polymercaptan (DPM) waste.	See #23.
	21 - 55 Gal.		DPM and 2737 waste	See #2.
	3 - 55 Gal.		Treated Potassium Hydroxide (KOH)	See #23.
	Ashtabula			
	41 - 55 Gal.	26	Water Repellent waste	See #17.
	38 - 55 Gal.		Dion Poly Mercaptan (DPM) waste	See #23.
11/5/68	Research			
	32 - 55 Gal.	27	Treated Potassium Hydroxide (KOH)	See #23.
	2 - 55 Gal.		Vaseline - solvent	Liquid - skin irritant.
	15 - 55 Gal.		CrO_3 + Acid	See above.
	9 - 55 Gal.		Poly Vinyl Chloride (PVC) Resin	Solid - non-hazardous.
	29 - 55 Gal.		Dion Poly Mercaptan (DPM)	See #23.
	Ashtabula			
	3 - 55 Gal.	27	DPM waste	See #23.
	29 - 55 Gal.		Chlorinated Polyethylene	Extremely viscous material - non-hazardous.
	33 - 55 Gal.		Dichloroparaxylene (P-Q-2-O)	Chlorinated paraxylenes - solids - slight skin irritant.
	1 - 55 Gal.		Chromic Acetate	Reduced chromic acid compound - solid - skin irritant.
	2 - 55 Gal.		Hexachlorobutadiene	See #7.
	1 - 55 Gal.		3,4 Dichloropropionanilide (DCA - 3L)	Solid - skin and eye irritant.
	1 - 55 Gal.		Chlorinated Monomer (Diablo 700X)	Viscous liquid - non-hazardous.
	2 - 55 Gal.		Disodium Methyl Ascrate (DSMA)	Solid - skin and eye irritant - toxic.

Apt 44

OEPA-RB

'68

[illegible] Buried at
[illegible] Disposal Area.

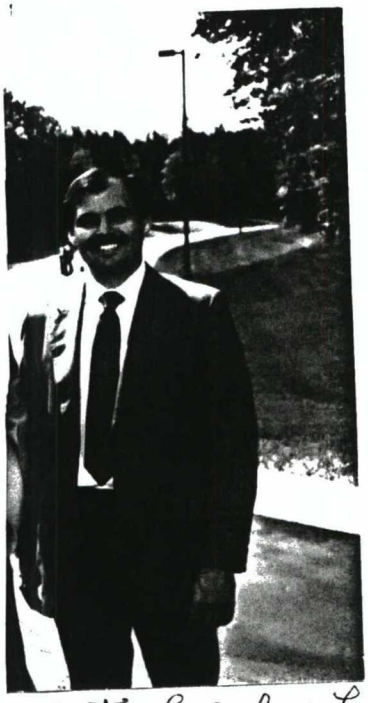
Date	Area Number of Drums and Drum Size	Area #	Material Buried	Hazard Remarks
11/ '68	Ravenna			
	9 - 55 Gal.	28	Treated DCM	See #23.
	1 - 55 Gal.		Muriatic Acid	See #26.
	7 - 55 Gal.		DCM waste	See #23.
	1 - 55 Gal.		Analytical samples	See #26.
	1 - 55 Gal.		Poly Vinyl Fluoride (PVF)	Solid - no hazard.
	Ashtabula			
	5- 55 Gal.	28	DPM waste	See #26.
	15 - 55 Gal.		HCBD bottoms	See #7.
	26 - 55 Gal.		P - 0 - 2-0	See #27.
	20 - 55 Gal.		Purfon	Straight chain polymer - viscous liquid - non-haz. rlous.
	2 - 55 Gal.		Lecithin	Sugar base solid - non-hazardous.
	3 - 55 Gal.		DCMA	See #27.
	2 - 55 Gal.		DCA - 3/4	See #27.
11/7/68	Ashtabula			
	12 - 55 Gal.	29	DPM waste	See #26.
	21 - 55 Gal.		P - 0 - 2 - 0	See #27.
	5 - 55 Gal.		HCBD bottoms	See #7.
	4 - 55 Gal.		DCA - 3/4	See #27.
1 /68	Ashtabula			
	30 - 55 Gal.	30	DPM waste	See #26.
	8 - 55 Gal.		HCBD bottoms	See #7.
	7 - 55 Gal.		P - 0 - 2 - 0	See #27.
	7 - 55 Gal.		DCA - 3/4	See #27.
	1 - 55 Gal.		Lecithin	See #28.
	1 - 55 Gal.		Delvet 65	Emulsified chlorowax 70 - viscous liquid - skin irritant.
	4 - 55 Gal.		Diablo 700X	See #27.
	2 - 55 Gal.		Water Repellent waste	See #26.

OEPA-RB

CERTIFIED M[illegible] RETURN RECEIPT REQUESTED - REC[illegible]T NO. P29 9885011

att 5a

Diamond Shamrock



(Photo of John Licata taken 7-14-83 by R. Bember (9 page list) only

September 30, 1981

Mr. Steve Tuckerman,
Ohio Environmental Protection Agency,
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Re: Diamond Shamrock Corporation
Painesville, Ohio,
One Acre Disposal Site

Dear Mr. Tuckerman:

As you requested, attached is an inventory of materials disposed of at the one acre site in Painesville, Ohio. Also, attached is a copy of "Operating Procedures" for disposal at this site dated March 15, 1968. My apology for the poor quality copy, but it was made from microfilm files.

If you have any questions, give me a call. I will contact you after I have talked to Bob Fragale in Columbus.

Sincerely,

DIAMOND SHAMROCK CORPORATION

John A. Licata

JOHN A. LICATA,
ENVIRONMENTAL MANAGER,
INTERNATIONAL TECHNOLOGY UNIT,
UNIT ENGINEERING AND
ENVIRONMENTAL AFFAIRS DEPARTMENT

JAL:ls
Attachment

RECEIVED
OCT 5 - 1981
OHIO ENVIRONMENTAL PROTECTION AGENCY
N. E. D. O.

One Acre Site

PAINESVILLE, OHIO

Hazardous WASTE DISPOSAL SITE INVENTORY by Diamond Shamrock

EXHIBIT C
(9 pages)
p 1 of 9

Water Repellent

SW-71239 - Shipped 12/6/67

Material is a liquid consisting principally of perchloroethylene (65%) and aluminum stearate (27%) with the balance made up of additives (chrome complexes).

HCBD Still Bottoms

SW-71240 - Shipped 12/14/67

Distillation residues from purification of Hexachlorobutadiene. Bottoms are semi-solids containing principally Hexachlorobutadiene, Hexachlorobenzene, Trichlorobenzene.

Diablo 700X -Scrap

SW-71240 - Shipped 12/14/67

Off-grade product, liquid, containing 70% chlorine. Similar to Chlorowax 70, except Nonene is the base material.

Filtrate - Tetrachloro-p-xylene Process

SW-71240 - Shipped 12/14/67

Di and Tetrachloro-p-xylene dissolved in Varnolene solvent. Material is acidic and has a strong smell. Can slowly decompose releasing HCl. Material in drums is a semi-solid.

DION Polymercaptan

SW-71240 - Shipped 12/14/67

Scrap DPM is a viscous liquid material that cannot be incinerated. It is stable and not corrosive.

Filtrate - Hexachloro-p-xylene

SW-71240 - Shipped 12/14/67

Similar to filtrate from Tetrachloro-p-xylene except principal materials are tetra, tri, and hexachloro-p-xylene in Varnolene solvent. Can slowly decompose releasing HCl. Material in drums is semi-solid.

att 5.4

WASTE DISPOSAL

9/8/66	250#	Waste IPN & DAC 2787
9/29/66	750#	Waste IPN & DAC 2787
8/4/66	1200#	Waste IPN & DAC 2787
8/11/66	100#	Waste IPN & DAC 2787
8/11/66	350#	Scrap PVF Resin
8/18/66	1200#	DAC 2787 in sand blast residue
8/18/66	350#	Waste IPN & DAC 2787
8/25/66	200#	DAC 2787 in sandblast residue
8/25/66	400#	Scrap PVF Resin
7/6/66	200#	Waste IPN & DAC 2787
7/14/66	536#	Waste IPN & DAC 2787
6/2/66	50#	Scrap PVF Resin
6/9/66	250#	Waste IPN & DAC 2787
6/23/66	200#	Waste IPN & DAC 2787
6/30/66	150#	Waste IPN & DAC 2787
5/5/66	600#	PVF Resin
5/5/66	200#	Waste IPN & DAC 2787
5/5/66	100#	Alamine
5/13/66	350#	Waste IPN & DAC 2787
4/5/66	750#	Waste IPN & DAC 2787
4/5/66	300#	Diisoyanate Waste
4/8/66	125#	Waste IPN & DAC 2787
4/14/66	750#	Waste IPN & DAC 2787
4/29/66	1200#	Waste IPN & DAC 2787
3/3/66	200#	Carbon Catalyst
3/3/66	1000#	Waste IPN & DAC 2787
3/10/66	750#	Waste IPN & DAC 2787
3/17/66	1900#	Waste IPN & DAC 2787
3/24/66	800#	Waste IPN & DAC 2787
3/29/66	650#	Waste IPN & DAC 2787
2/3/66	250#	Waste IPN & DAC 2787
2/3/66	275#	Scrap PVF Resin
2/10/66	900#	Waste IPN & DAC 2787
2/17/66	1800#	Waste IPN & DAC 2787
2/24/66	800#	Waste IPN & DAC 2787
1/7/66	250#	Misc. Small Samples
1/13/66	175#	Waste IPN & DAC 2787
1/20/66	1800#	Waste IPN & DAC 2787
1/20/66	170#	Titanium Sponge
1/28/66	1500#	Waste IPN & DAC 2787
12/2/66	1500#	Waste IPN & DAC 2787
12/9/66	150#	Waste IPN & DAC 2787
12/9/66	125#	Scrap PVF Resin
12/16/66	225#	Waste IPN & DAC 2787
12/16/66	20#	Sodium Sulfohydrade
12/23/66	250#	Waste IPN & DAC 2787
12/30/66	30#	p-1-0-0
12/1/65	--	Month of November, no deliveries of waste material.
11/1/65	--	" " October, " " " " "
10/1/65	--	" " September, " " " " "
9/1/65	--	" " August, " " " " "

WASTE DISPOSAL

7/22/65	50#	Scrap PVF Resin
6/23/65	600#	Disodium Methane Arsenate
5/3/65	--	Month of April, no deliveries of waste material.
1/8/65	100#	Misc. small samples
1/14/65	100#	Polyacetyl waste
1/21/65	100#	Misc. small samples
1/28/65	450#	Misc. small samples
1/28/65	20#	Ethylene dichloride
1/28/65	50#	Polythi
1/28/65	50#	Methyl Methacrylate
1/28/65	20#	Dimethyl Formamide
2/4/65	75#	Misc. small samples
2/25/65	50#	p-1-0-1
2/25/65	250#	Diisocyanate waste
2/25/65	120#	Misc. samples
3/4/65	200#	Misc. samples
3/18/65	250#	Misc. samples
3/25/65	150#	Misc. samples
10/1/64	75#	Small samples
10/15/64	50#	Small samples
11/17/64	175#	Dimethyl Formamide
11/26/64	75#	Unreactive waste
12/--/64		Nothing to Coke Plant area.
12/22/64	8 Drums	Solid waste from the Dion Polysulfide Plant.
11/4/64	30 Drums	Hexachlorobutadiene
11/4/64	5 Cars	Hexachlorobutadiene
7/16/64	30#	Dichloro-p-Xylene
7/16/64	20#	Antimony Trioxide
8/20/64	500#	Hexachloro-p-Xylene
8/27/64	2500#	Hexachloro-p-Xylene
8/27/64	25#	Small samples
9/25/64	200#	Small samples
4/2/64	200#	Polyol samples
4/2/64	100#	Polymercaptan waste
4/2/64	100#	Broken glass
4/2/64	275#	Contaminated containers and trash.
4/7/64	750#	Polyol
4/7/64	95#	Small samples
4/7/64	200#	Contaminated container & trash.
4/9/64	90#	Drierite
4/9/64	25#	Polyol
4/9/64	100#	Contaminated trash
4/16/64	350#	Diisocyonate waste
4/16/64	2000#	Hexachloro-m-Xylene
4/16/64	500#	Diablo 700X
4/16/64	225#	Isophthaloyl Chloride
4/23/64	500#	Contaminated Transite
4/23/64	125#	Contaminated Trash
4/23/64	3000#	Polyol

WASTE DISPOSAL

5/7/64	100#	Misc. small samples
5/28/64	200#	Misc. small samples
5/28/64	75#	Hexachloro-m-Xylene
6/4/64	100#	Misc. small samples
6/18/64	350#	Herbicide
6/18/64	50#	Polythi waste
6/26/64	40#	DAC-1200
6/26/64	250#	Amberlite LA-2
6/26/64	50#	Orthodichlorobenzene
4/24/64	4 Drums	Scale Wax
4/24/64	3 Drums	Formaldehyde
4/24/64	1 Drum	Oleic Acid
4/24/64	3 Drums	Monoethanolamine
4/24/64	6 Drums	Methly Monochloroacetate
4/24/64	4 Drums	Neosapon CF-11 Waste
4/27/64	9 Drums	Acetone Waste
4/27/64	7 Drums	Methyl Monochloroacetate - Still Bottoms
4/27/64	6 Drums	Organic Waste
1/9/64	50#	Phosphorous Polyols
1/9/64	200#	Small samples
1/9/64	25#	Broken glass
1/9/64	100#	Contaminated containers
1/23/64	200#	TTD
1/23/64	300#	Misc. waste chemicals
1/23/64	20#	Phosphorous polyol
1/23/64	25#	Contaminated containers
1/30/64	200#	Contaminated trash
1/30/64	50#	Contaminated plastic hose
1/30/64	50#	Polyol
1/30/64	25#	DAC-559
2/13/64	125#	DAC 559
2/13/64	100#	Polyurethane foams
2/13/64	50#	Misc. small samples
2/13/64	75#	Broken glass
2/20/64	100#	Polythi
2/20/64	200#	DAC 559
2/20/64	125#	Misc. small samples
2/20/64	200#	Contaminated trash
2/20/64	50#	Broken glass
2/27/64	375#	DAC-559
2/27/64	150#	Misc. small samples
2/27/64	50#	Broken glass
2/27/64	50#	Misc. chemicals
3/5/64	250#	Misc. small samples
3/5/64	100#	Contaminated trash
3/5/64	75#	Contaminated plastic hose
3/5/64	100#	Contaminated containers
3/12/64	100#	Misc. small samples
3/12/64	75#	Broken glass
3/12/64	75#	Contaminated trash
3/18/64	75#	Polythi waste
3/18/64	100#	Small samples

WASTE DISPOSAL

3/18/64	50#	Broken glass
3/18/64	50#	Contaminated trash
3/25/64	100#	Polythi waste
3/25/64	75#	Contaminated trash
3/25/64	100#	Misc. small samples
3/25/64	100#	Used containers
10/4/63	250#	DAC-559
10/4/63	25#	Misc. small samples
10/11/63	2000#	Phosphorous polyol
10/18/63	100#	DAC-559
10/18/63	25#	Phosphorus polyol
10/18/63	100#	Misc. samples
10/18/63	50#	Antimony oxide
10/25/63	50#	Misc. samples
10/25/63	50#	Contaminated hose, plastic bags, & containers
10/31/63	15#	Phosphorous pentoxide
10/31/63	100#	Sump settlings
10/31/63	150#	Misc. small samples
11/7/63	100#	DAC-559
11/7/63	50#	Misc. chemical trash
11/7/63	20#	Samples
11/7/63	35#	Broken glass
11/14/63	50#	Misc. chemicals
11/14/63	50#	Broken glass
12/12/63	50#	Small samples
12/12/63	25#	Broken glass
12/19/63	50#	Contaminated containers & trash
9/26/63	2 Drums	MMCA Still Bottoms (methyl-monochloroacetate)
9/26/63	2 Drums	MMCA Esterifier Bottoms (methyl-monochloroacetate)
9/26/63	1 Drum	HCBD Bottoms - (Hexachlorobutadiene)
9/26/63	1 Drum	MMCA Samples - (Methyl-monochloroacetate)
6/19/63	12 Drums	M-141 - (2100#)
6/19/63	17 Drums	Misc. Solvents (55 gals.)
6/28/63	3 Cardboard Boxes	DAC-893 samples
6/28/63	3 "	Misc. chlorinated xylene samples
6/28/63	8 Cartons	Sodium CMC - (Carboxy-methylcellulose)
6/28/63	15 Cartons	DT Whitener
6/28/63	3 Cardboard Boxes	TTD
6/28/63	3 "	Dichlorophenol (samples)
6/28/63	1 Jug	Recovered Aniline
6/5/63	2 Drums	Waste Polyol (55 gals.)
6/5/63	1 Small Drum	Misc. hose, plastic bags, etc.
7/12/63	1 Drum	Waste DAC-559 (55 gals.) & used 559 bags
7/12/63	1 Carboy	(Plastic) waste polyol solvent
7/12/63	Several	Misc. waste solvents from "A" Bldg.
7/19/63	10 Cans	(Waste Polyol (5 gals.)
7/19/63	1 Drum	Waste Methylene Chloride from Polyol (25 gals.)

att 5g

WASTE DISPOSAL

7/19/63	1 Drum	Misc. hose, bags, etc.
7/19/63	Several	Misc. waste solvents from "A" Bldg.
7/25/63	2 Drums	Cyanuric Acid (145#)
7/25/63	1 Drum	$CiCl_3$ (20#)
7/25/63	2 Drums	Trichlorophenol (100 gals.)
7/25/63	500#	Ferrochrome Silica
7/26/63	100#	Di amino stilbine di sulfonic acid
7/26/63	15 Gals.	Polyether samples
7/26/63	1 Drum	Silicon
7/26/63	1 Drum	Alumina (150#)
7/26/63	7 Cans	Waste Polyol (5 gals.)
7/26/63	1 Drum	Misc. chemical trash (hoses, bags, etc.)
7/26/63	1 Drum	559 trash (bags, etc.)
8/2/63	1 Drum	Samples: Xylenes & derivatives (55 gals.)
8/2/63	1 Drum	Misc. chemical trash
8/9/63	1 Drum	Misc. Polyol samples
8/9/63	Several	Misc. waste solvents from "A" Bldg.
8/16/63	2 Drums	Waste Polyol (55 gals.)
8/16/63	Several	Misc. waste solvents from "A" Bldg.
8/16/63	1 Drum	Misc. chemical trash
8/30/63	1 Drum	Chlorinated PVC - (about 40#)
8/30/63	1 Drum	Misc. chemical trash
9/6/63	1 Drum	PVC-450 (100#)
9/6/63	50#	Sodium chloroacetate
9/6/63	10 Gals.	Misc. waste from "A" Bldg.
9/6/63	10#	Misc. small samples
9/6/63	1 Drum	DAC-559 - (40#)
9/6/63	1 Gal.	Ethylene Glycol
9/6/63	25#	KCl
9/6/63	25#	NH_4Cl
9/6/63	10#	Di bromo-sentane
9/6/63	10#	Zinc Chloride
9/6/63	25#	Dolomite
9/6/63	2 Gals.	Chloro still bottoms
9/6/63	Several	Misc. waste solvents from "A" Bldg.
9/20/63	50#	Photine C
9/20/63	120#	Refractory Cement
9/20/63	70#	Ammonium Sulfate
9/20/63	200#	Peraclase
9/20/63	300#	Caustic Soda (solid)
9/20/63	150#	Polyol ✓
9/20/63	Several	Misc. waste solvents from "A" Bldg.
9/27/63	50#	Polyol mixture
9/27/63	1 Drum	(Part full) mostly water - coated with urethane
9/27/63	100#	DAC-559 waste (removed from drum by error)

WASTE DISPOSAL

6/13/63	17 - 55 Gal. Drums	Hexachlorobenzene (HCB) & Hexachlorobutadiene (HCBD)	
8/17/70	341 - 380# Drums	CWX 500 (98.9 Tons)	
"	117 - 525# "	CWX 40 (30.7 ")	
"	10 - 500# "	CWX 40LV (2.5 ")	
"	48 - 525# "	ECCl (12.6 ")	
"	In Process CCl_4 Materials	Crude -- 50% CCl_4, 50% S_2Cl_2	14,185 Gals.
"	" " " "	Settlings & residue -- 90% S_2Cl_2, 10% CCl_4	12,045 "
"	" " " "	Stripper Feed - 95% S_2Cl_2, 5% CCl_4	18,000 "
"	" " " "	Sulfur - several tons	
"	" " " "	Still Toppings - 84% CCl_4 4.5% $CHCl_3$ 6.4% CS_2	12,906 "

All Commercial Scale
— R. Bimber

Att 5i

WASTE DISPOSAL

6/25/70	200 -	55 Gal. Drums	DAC 2787
"	79 -	" " "	Safire & coal tar
"	53 -	" " "	Misc. Organic chemicals
"	29 -	" " "	Treated KOH
"	22 -	" " "	Polysulfide
"	14 -	" " "	Dichloroformal
"	13 -	" " "	PVC
"	9 -	" " "	PVF
"	6 -	" " "	Nopcoflex-3
"	5 -	" " "	Pesticide (DACTHAL herbicide)
"	5 -	" " "	THF
"	4 -	" " "	Analytical samples
"	4 -	" " "	Ethylene Dichloride
"	4 -	" " "	Silicate
"	4 -	" " "	Xylol
"	3 -	" " "	Polymercaptan
"	2 -	" " "	Acetone
"	2 -	" " "	Heptane
"	2 -	" " "	Mobilsol 66
"	2 -	" " "	Oil
"	2 -	" " "	Polyol
"	1 -	" " "	Ethylene Chlorohydrin
"	1 -	" " "	Isocyanate
"	1 -	" " "	Polymer solution
"	1 -	" " "	Sodium Hydroxide
"	1 -	" " "	Sodium Sulfide
"	1 -	" " "	Toluene
"	1 -	" " "	Trichlorobenzene
"	156 -	5 Gal. Drums	Misc. Organics
"	114 -	" " "	Sodium Polysulfide
"	11 -	" " "	Safire
9/22/69	12 -	55 Gal. Drums	Polyvinyl Fluoride
"	20 -	" " "	Treated KOH
"	53 -	" " "	DACONIL 2787 & Isophthalonitrile
"	19 -	" " "	Carbon Catalyst
"	10 -	" " "	Safire Waste
"	1 -	" " "	Caustic Potash
"	10 -	" " "	Polymercaptan
"	2 -	" " "	Trichloropropane
"	30 -	" " "	Misc. non-burnable organics
"	6 -	" " "	Polysulfide
"	2 -	" " "	Polyvinyl acetate
"	10 -	" " "	Spent Sulfuric Acid
"	8 -	5 Gal. Drums	Polyvinyl Fluoride
"	75 -	" " "	Polysulfide
"	22 -	" " "	Misc. non-burnable organics

105 cans

WASTE DISPOSAL

5/20/69	146 - 55 Gal. Drums	Daconil 2787
"	17 - " " "	Dion Polymercaptan
"	4 - " " "	Analytical Samples
"	33 - " " "	Organic Solvents
"	6 - " " "	Carbon Catalyst
"	2 - " " "	PVF
"	24 - " " "	Treated KOH
"	1 - " " "	Sodium Sulfhydrate
"	3 - " " "	Perchloroethylene Water Repellent
"	2 - " " "	CrO_3-t-Butanol
"	1 - " " "	Toluene with Polymercaptan
"	6 - " " "	Safire
"	1 - " " "	Acrylic Latex Waste
"	1 - " " "	Chromic Acid Waste
"	5 - " " "	2,4 - Dichlorophenoxy
"	10 - 5 Gal. Cans	Chlorinated Xylene Waste
"	2 - " " "	Oil Waste
"	30 - " " "	Organic Waste
"	1 - " " "	Dimethylformamide
"	29 - " " "	Dion Polymercaptan
"	33 - " " "	Organic Solvents
"	18 - " " "	PVF
"	2 - " " "	CrO_3-t-Butanol
"	2 - " " "	Safire

127 ~~

Additional Notes Related to Disposal Inventory:

1.) Waste IPN and DAC 2787
IPN - Isophthalonitrile; DAC 2787 is a product which contains IPN as the active agent. IPN is the active agent and is registered as an EPA PESTICIDE under FIFRA.

2.) PVF - Polyvinyl Fluoride

3.) DAC - 599 Internal Research Project Code. Referring to research project wastes.

4.) PVC - Polyvinyl CHLORIDE RESIN.

5.) CWX - refers to trade name Chlorowax products which are chlorinated wax materials.

6.) SAFIRE - Trade name for a sodium silicate solution product.

notes 1+3 are incorrect. The active pesticide (fungicide) in DAC 2787 (which should contain little or no IPN) is tetrachloroisophthalonitrile. It is made from IPN. DAC 559 (not 599) is N,N',N'',N'''-tetrachloroglycoluril, a pure chemical sold as a dry bleach.
- Russell Bimber

Att 6

25th Anniversary, Great Lakes Water Quality Agreement
Statement prepared for the Public Forum, Nov. 1-2, 1997
[redacted], retired after 40 years
as a pesticide research chemist

I want to offer some general comments on the difficulty of identifying the critical contaminants which contribute most to observed biological damage, and suggest some possible modes of action. I will also tell you about a hazardous chemical landfill placed on the edge of Lake Erie by my former employer, that Ohio EPA is not managing properly.

The 1995-7 Priorities and Programs booklet, at pages 16 and 17, tells of the great difficulty and importance of identifying the critical agent, among co-occurring contaminants, which contributes most to specific biological harm. You already know most of contaminants of greatest concern are fat soluble materials that are concentrated up the food chain to large fish and then to fish eaters- especially certain birds and people. Most of these contaminants are chlorinated organics-- the kind of materials I've worked with for most of my life.

At the Ohio Lake Erie Conference in September, one speaker told of impaired eye development attributed to chlorinated organics also correlating with greatly decreased vitamin A. It is well known that vitamin A is fat-soluble, and is associated with eye development.

Given this, it seems that many of the ill effects attributed to chlorinated organics might be due to destruction of the fat soluble vitamins, A, D, E, K, and hormones. (--If this is already known, please speak up!--) Both are concentrated in fatty tissues, which would increase the chance of chemical reaction. Vitamin D is associated with calcium metabolism, so its destruction could account for eggshell thinning and breakage, and slow bone growth. Loss of vitamin E could explain impaired muscle development and reproductive failure. Vitamin K promotes blood clotting, so its destruction might cause hemorrhaging. Hemorrhaging in the gut, attributed to chlorinated organics, was reported at the recent Lake Erie Conference. Sex hormones are also fat soluble, so hormonal changes may be due to their reaction with chlorinated organics.

Variations in the relative amounts of coexisting contaminants and the differing nutritional status in specific organisms compounds the difficulty of identifying the critical contaminants and critical biologically significant molecules associated with individual harmful effects. This might also account for occasional reports which appear to contradict prior data-- such as one in The New England Journal of Medicine for Oct. 30th, claiming DDT and PCBs do not trigger breast cancer. In some cases, unrecognized coexisting contaminants might be causative agents.

Hazardous Chemical Landfill

Ohio EPA is currently representing USEPA in investigating the former Diamond Shamrock Painesville Works as a proposed Superfund Site. Liability for this site currently resides with the Maxus Energy subsidiary of the Argentine oil company, YPF.

Ohio EPA recently put a Remedial Investigation/Field Study Plan in local libraries. The RI/FS cites only laboratory wastes-- typically less than five gallon packages-- having been buried in a one acre hazardous chemical landfill 200 feet from Lake Erie. I learned how close the landfill was to the Lake when Ohio EPA stepped up its study in 1985. Ohio EPA let me copy Diamond reports on the landfill from their files. Those reports show half the weight of waste buried here is from full commercial scale operations and a quarter is from semicommercial operations. Only a quarter was laboratory waste.

Ohio EPA seems to be trying to avoid confronting the problem, so I want the International Joint Commission to know what Diamond Shamrock told EPA it buried from 1963 through 1970. After studying sixteen pages of often vague lists, I offer this brief list of the principal wastes in the landfill:

Chemicals (liquids, except as noted)	Pounds
Hexachlorobutadiene & (less) Hexachlorobenzene	842,500
Carbon Tetrachloride and Sulfur Dichloride	750,000
Chlorinated paraffins (viscous, sticky)	295,000
IsoPhthaloNitrile and tetrachloro-IPN (solid)	272,000
Polymercaptan and polysulfide sealants (solid)	157,000
Mixed organic solvents (acetone and xylene rich)	140,000
Tetrachloroethylene	54,000
Chlorinated xylenes (Mostly solid, hexachloro-m- & p-)	50,000
Methyl Chloroform (1,1,1-trichloroethane)	30,000
Total of hundreds of smaller quantity wastes, both solid and liquid	0.5 to 1.0 million
Overall total	3.0 to 3.5 "

I believe I can understand Diamond's records on this landfill as well as anyone, because I was employed by Diamond Alkali, Diamond Shamrock, and successor companies as a pesticide research chemist from 1952 through 1991, when I retired at my own choice.

You can phone me at Non-responsive

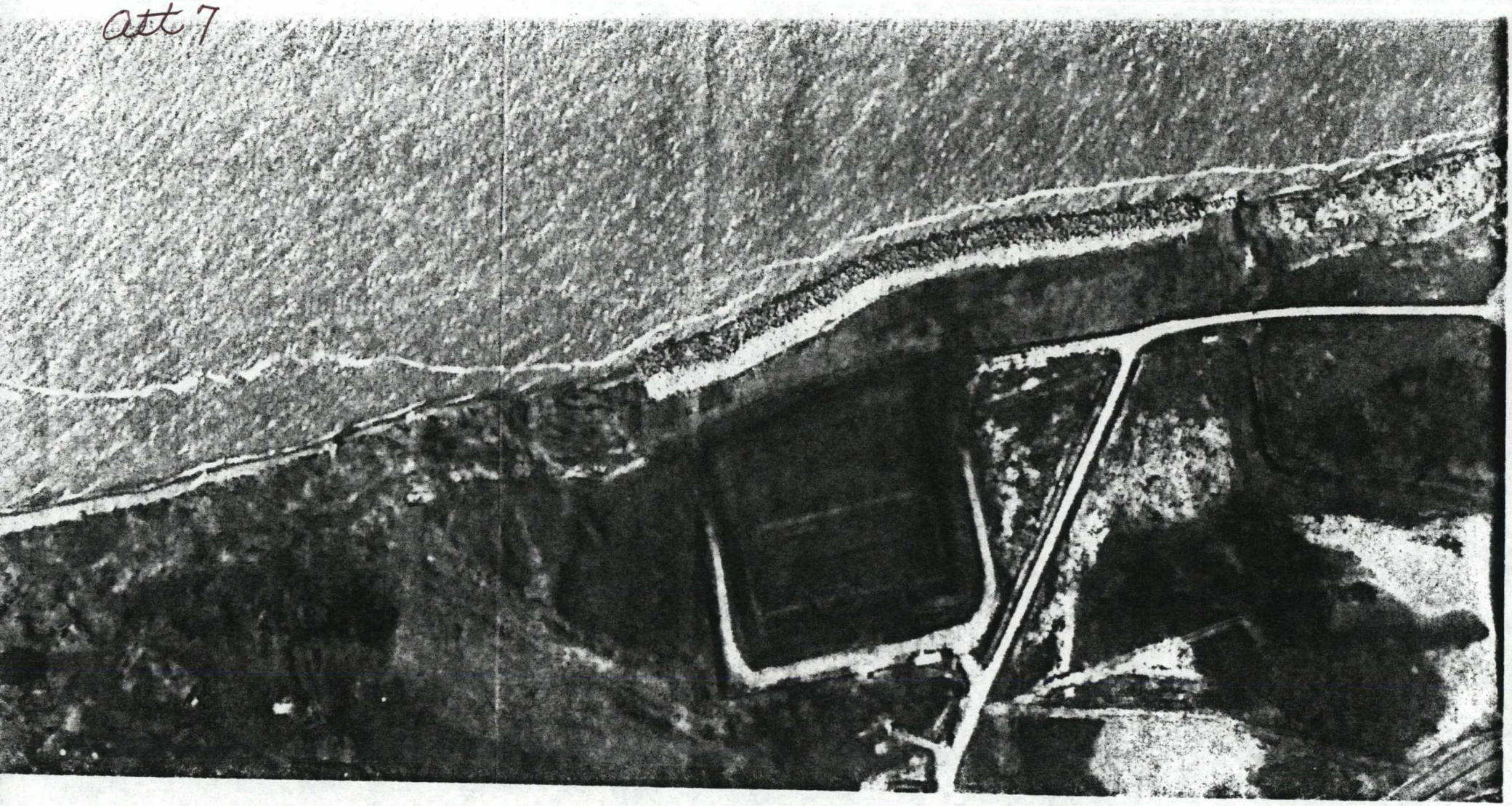
Non-responsive

Thank you for your attention.

Non-responsive

(M.S., 25 US Patents)

att 7



PHOTOGRAPHIC OVERLAY
to
LAKE COUNTY, OHIO

Topography Map No. 109

Date of Overlay Photography: April 1994

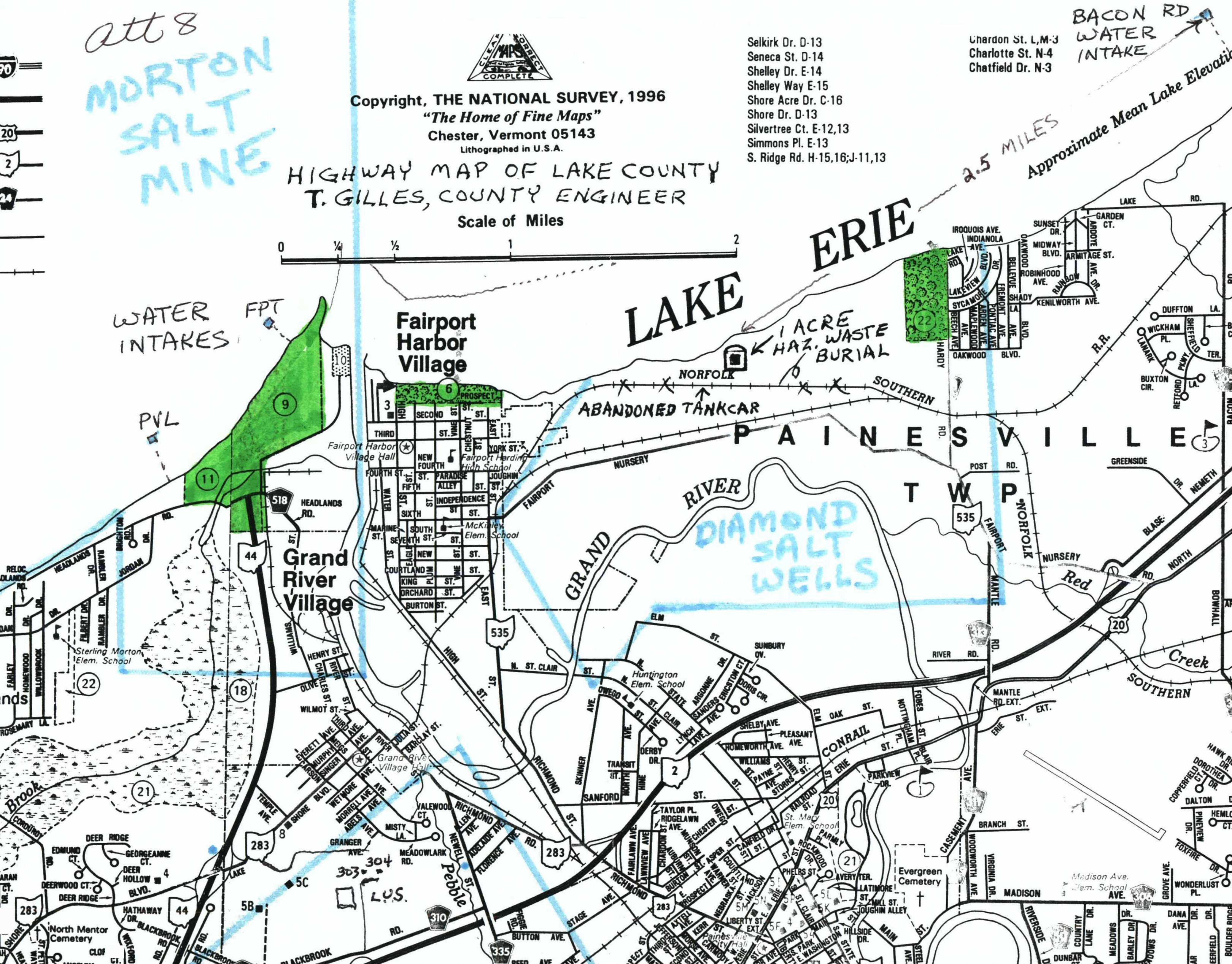
Note: Overlay images are unrectified and not orthographically corrected. therefore images will not exactly match map detail.

Overlay prepared by:

KUCERA INTERNATIONAL INC.
38133 Western Parkway
Willoughby, OH 44094
Tel. (216) 975-4230 Fax (216) 975-4238

Diamond buried hazardous chemicals from 1963 to 1970 in a 250' square, centered in a fenced 400'square, extending past the slope down to Lake Erie. Ohio EPA's Remedial Investigation/Field Study Plan in Morley and Fairport Libraries mentions only small quantity laboratory wastes being put here, in Study Area 3, but the sixteen page list Diamond gave OEPA totaled 3-3.5 million pounds, including five tankcars and 57,000 more gallons of chlorinated solvents in large tanks, and about 2000 drums of mixed wastes. 3 water plants serving 65,000 people and two major swimming beaches are less than 3.5 miles away. -Bimber, 11/15/97.

(midway between Fairport Beach Park and Painesville Twp. Park)


att 8
MORTON SALT MINE
Copyright, THE NATIONAL SURVEY, 1996
"The Home of Fine Maps"
Chester, Vermont 05143
Lithographed in U.S.A.
HIGHWAY MAP OF LAKE COUNTY
T. GILLES, COUNTY ENGINEER
Scale of Miles
0 ¼ ½ 1 2
Selkirk Dr. D-13
Seneca St. D-14
Shelley Dr. E-14
Shelley Way E-15
Shore Acre Dr. C-16
Shore Dr. D-13
Silvertree Ct. E-12,13
Simmons Pl. E-13
S. Ridge Rd. H-15,16;J-11,13
Chardon St. L,M-3
Charlotte St. N-4
Chatfield Dr. N-3
BACON RD WATER INTAKE
Approximate Mean Lake Elevation
2.5 MILES
LAKE ERIE
WATER INTAKES
FPT
PVL
Fairport Harbor Village
1 ACRE HAZ. WASTE BURIAL
NORFOLK
SOUTHERN
ABANDONED TANKCAR
PAINESVILLE TWP
GRAND RIVER
DIAMOND SALT WELLS
Grand River Village
HEADLANDS RD.
Fairport Harbor Village Hall
Fairport Harding High School
McKinley Elem. School
Sterling Morton Elem. School
Huntington Elem. School
Grand River Village Hall
St. Mary Elem. School
Evergreen Cemetery
North Mentor Cemetery
Madison Ave. Elem. School
CONRAIL
Red Creek
303 304
L.U.S.
5C
5B
Pebble

att 9

DIAMOND

IRC FIBERS:

Painesville Twp. toxic waste sites trouble residents

Plain Dealer 3-19-83 page 1-A

By Karen E. Henderson

Two hazardous waste sites in Painesville Township in Lake County, one believed to contain quantities of mercury, zinc and sulfuric acid, and the other containing a deadly chemical potpourri, are causing renewed concern about potential contamination of Lake Erie.

A seawall designed to prevent shore erosion north of a one-acre waste site owned by the Diamond Shamrock Corp. is sagging and in danger of collapse, which could unleash the wastes, The Plain Dealer has learned.

The site, north of the former Diamond plant on Fairport-Nursery Rd., contains highly toxic chemical wastes, including known carcinogens, primarily from the Diamond Research Center. It was used as a dump from 1963 to 1970.

Steve Tuckerman, an environmental scientist with the Ohio Environmental Protection Agency (EPA) yesterday took samples of a reddish substance seen oozing from the bank of a stream flowing next to the Diamond dump into Lake Erie.

A caller told The Plain Dealer something was leaching into the lake from the site. A Plain Dealer reporter and a Painesville Township resident walked the lake shore Wednesday until they found the effluent and then notified the EPA.

Tuckerman, who took samples yesterday, said the seepage may be nothing more than iron oxide. But he said he was concerned

Continued on Page 10-A

■ FROM FIRST PAGE

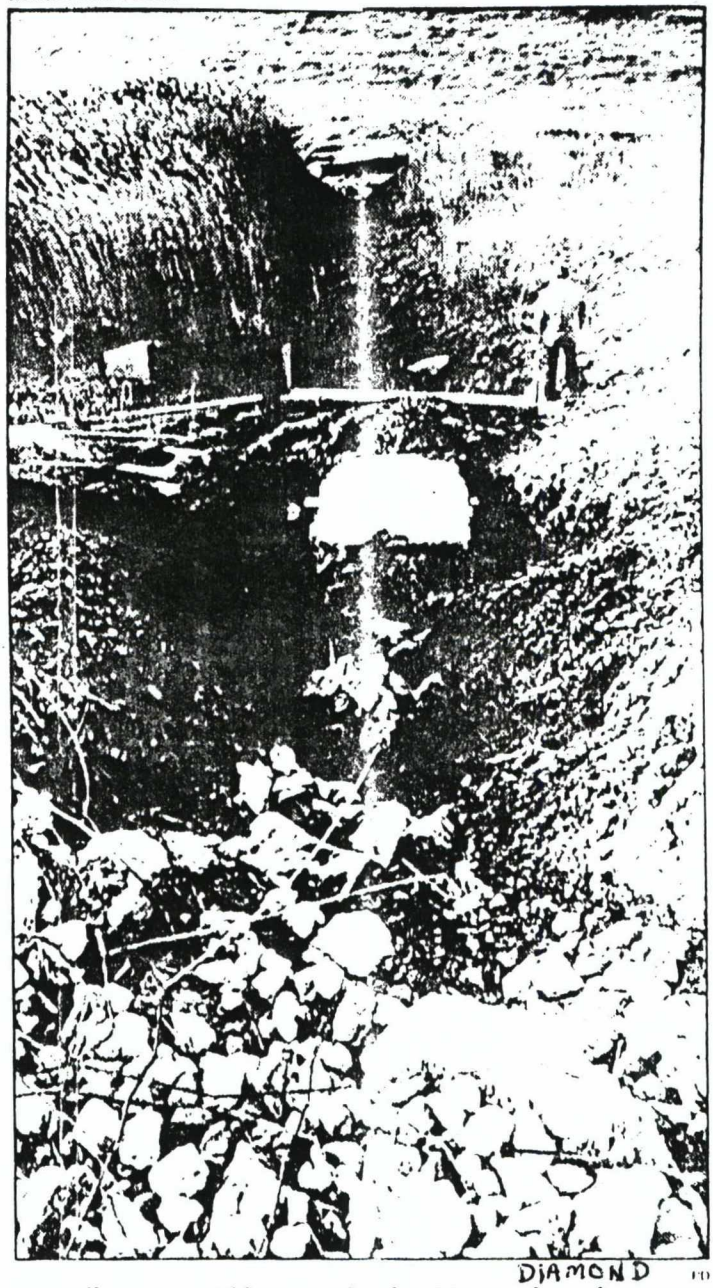
about the safety of the site and would have the samples tested.

Tuckerman also expressed concern about the sagging seawall, constructed of rock-filled wire containers called gabions. He said he hoped Diamond would be willing to repair the gabions before the wall collapses.

The dump site is less than 50 feet from the bank overlooking the lake. The area has been severely hit by shore erosion over the years, causing the loss of homes and roads.

Paul J. Dugas, senior environmental engineer for Diamond's chemical unit division, said the gabions will not collapse. "If maintenance is required on the site, we will perform the maintenance," he said.

Dugas said Diamond plans to plant the banks with vegetation this summer as protection from further erosion.



DIAMOND

A small stream trickles toward Lake Erie at a hazardous waste site in Painesville Township in Lake County. A scientist from the Ohio Environmental Protection Agency took samples here yesterday of a reddish substance seen oozing from the stream bank.

Farther east, a second site of five to 10 acres off Bacon Rd., started in 1939 by the Industrial Rayon Co., later known as IRC Fibers Co., appears to contain thousands of rusting drums of waste buried under mounds of fly ash.

The drums are popping to the surface, and many are so badly rusted their contents have already escaped to a nearby stream which flows into Lake Erie.

Gary W. Gifford, EPA environmental scientist in charge of this site, admitted the site is polluting the stream and lake, but he said the level of pollution is low. Recent tests show a higher-than-normal concentration of zinc, but at levels not harmful to humans or the environment, he said.

A major concern, Gifford said, is that mercury might be present at the site. None has been found so far. He said EPA does not know all of the chemicals that might have been buried since the site was opened in ... until 197?

Steve took two samples of the reddish ooze between the headwall he's standing on and the gabion at the bottom. As this is now concealed under a more extensive erosion barrier having a second underdrain farther east. The slope above the erosion barrier is bathed with surface water from two outlets higher on the slope. Seepage of the waste to the lake is now well concealed from casual observers!

Probably iron chloride solution forming iron oxide when exposed to air. - R. Bimber

Seep and ye shall find: Hidden water flow

Subterranean rivers flowing slowly through the ground carry freshwater into the ocean in quantities far larger than scientists had suspected, according to recent research conducted off the coast of South Carolina These invisible seeps season the seas with salts, metals, and pollutants

During July 1994, groundwater oozed out through sediments on the seafloor along the state's coastline at a rate of 30 billion liters per day This is a little under half the water entering from the region's rivers, says Willard S. Moore of the University of South Carolina in Columbia

"What we've done is show that the groundwater input to the coastal ocean is extremely important," says Moore, who described his results in the April 18 NATURE

"This has tremendous implications for understanding everything from pollution to geochemistry," comments ecologist George M Simmons of the Virginia Polytechnic Institute and State University in Blacksburg

Although hidden from view, water stored in porous, underground rocks constitutes 97 percent of the world's supply of liquid freshwater Like surface rivers, which flow downhill toward the sea, some of this groundwater migrates downward through subsurface formations that open beneath the ocean Scientists have made spot estimates of groundwater entering the sea, but Moore's study is the first to gauge this process on a regional scale.

The South Carolina geochemist happened on a technique for measuring groundwater flow while he was studying naturally occurring radium in a salt marsh. Moore found that the amount of an isotope, ^{226}Ra, in the marsh water exceeded that in ocean water Because no rivers emptied into the inlet, the radium must have come from groundwater seeping into the marsh, he reasoned.

He then used ^{226}Ra to trace groundwater entering coastal waters and again found excess radium that could not have come from the ocean or rivers. "By process of elimination, the primary source of the ^{226}Ra enrichment must be the discharge of groundwater containing dissolved ^{226}Ra," he concludes.

Moore suspects that when brackish groundwater penetrates fresh aquifers, it causes sediments to release ^{226}Ra, which can then flow into the ocean. People enhance radium movement by pumping drinking water from coastal aquifers; this reduces pressure in the aquifer and allows saltwater to intrude farther inland than it otherwise would

He expects that other elements and ions behave similarly, making groundwater an important source for many of the ocean's trace constituents, including nutrients that support aquatic life.

In unpublished studies, geochemist William C. Burnett of Florida State University in Tallahassee also has found significant groundwater movement into the northeast Gulf of Mexico. Burnett's group used dissolved radon as a tracer of groundwater flow.

"When you look at the process, it's a lot larger than people might have thought. We were surprised It's been one of those things in earth science where people know it goes on, but no one to date had really developed a good way of measuring it, so it's generally not talked about," says Burnett.

Before these new measurements, some scientists had suggested that groundwater flow into the ocean might equal only one-thousandth of the river flow. But Burnett estimates that groundwater contributions to the ocean total about one-tenth of the amount supplied by rivers globally In some locations, the groundwater component may dominate, he says

Measurements off many coasts indicate that subterranean flow can carry pollutants, as well as naturally occurring elements, into the ocean In particular, nitrates from septic tanks have seeped into seawater, says Burnett.

—R Monastersky

This article on hidden water flow probably also applies to many parts of the Great Lakes, and the Dismond Shamrock 1 Acre Hazardous Waste Burial Site ("Mapes' Closed 1 Acre Landfill").

— R. Bimber 5/13/96

Att 10

the attachment to question #21, see Exhibit #7.

23. The north or number one well was drilled August 29, 1979. The east or number two well was drilled September 6, 1979. The south or number three well was drilled September 10, 1979. The west or number four well was drilled September 12, 1979.

24. Attached are copies of the original well drilling logs. (See Exhibit #4).

25. David Brothers Drilling, Inc.
6659 Williams Road
Painesville, Ohio

26. Attached find copies of analyst's lab notebook sheets and a copy of the laboratory report of analysis. (See Exhibit #8).

27. The exact quantity of wastes noted on the inventory as drum, car, container or can is not known in all cases; however, records do indicate that "drum" usually referred to a 55 gallon size and "can" usually referred to a 5 gallon laboratory size. Other sizes of referenced "container" are unknown. The term "car" is probably a typographical error, as there was no physical way to bring a railroad tankcar to the site.

To the best of the information, knowledge and belief of the undersigned, all statements herein contained are true and accurate and all documents submitted herewith are true and authentic.

DIAMOND SHAMROCK CORPORATION

By _____
Group Leader, Research & Development

Dated Sept 12 1980

County of Cuyahoga)
)
State of Ohio)

I, _____ a notary public in and for said county and state do hereby certify that on September 12, 1980 the aforesaid _____, known to me to be the person whose name is hereinabove subscribed, personally appeared before me and acknowledged that being aware of the contents of this Response to Information Request, he executed the same for Diamond Shamrock Corporation.

_____

Note added 1-17-96 by Non-responsive who used to square dance + play bridge in small groups including Non-responsive Non-responsive protested about Diamond pressuring him to sign this document while holding his substantial lump-sum retirement benefit because he had no responsibility for waste disposal and no special information about the statements. He got the word "information" added to the sentence preceding his signature.

Non-responsive 1-17-96

OEPA - RB
C100841

att 11

Non-responsive

Oct. 23, 1997

To: Teri Phillips
Ohio EPA
Northeast District Office
2110 E. Aurora Rd.
Twinsburg, OH 44087-1969

RE:Diamond Shamrock Painesville Works
OEPA #243-0230

Dear MS. Phillips:

The waste in Diamond Shamrock's one acre hazardous chemical waste landfill, which is about a mile east of the mouth of the Grand River and 200 feet from Lake Erie, is misrepresented in the RI/FS Work Plan that Ohio EPA recently placed in Morley Library in Painesville and in the Fairport Library. It is similarly misrepresented in the Video which the Diamond Shamrock Community Relations Team made "available" through those libraries.

On Sept. 12th, Morley Library had the video, but said it would take a week or two to process before it could be taken out. I asked to be called when it was available. They didn't call, so I went to the Library on Oct. 14th, only to be told it still hadn't been processed, and they could not say when it would be! (The Fairport Library gave me a card, processed the video, and loaned it to me within ten minutes.)

The wastes are said to be from laboratory research, mostly small lab packs, generally less than five gallons. That accounts for only a quarter of the waste, based on information Diamond sent to Ohio EPA before 1982. I copied this information from files in your office in 1995. The waste totals 3 to 3.5 million pounds. More than half was from full commercial scale production, and another quarter from semi-commercial production. I know because I was a research chemist for Diamond Alkali and successor companies for forty years. The most abundant containers were 55 gallon drums-- about 2000 of them. There were about a dozen containers with capacities of 10,000 to 18,000 gallons. We have discussed this repeatedly-- most recently in my letter dated June 3, 1997, which was copied to Michael Colvin of ODNR.

The RI/FS (Appendix H, Section VI) contained poor, partly illegible copies of 1968 Diamond interoffice memos, which said burials were restricted to research wastes, and began in 1965. At least one page appearred to have been photocopied with a corner folded over. It included a seven page list of wastes and a map showing numbered cells within a 200 foot square where they were buried. Additional unidentified pages 3 and 5, showed waste disposal in 1963, 1964, and 1965.

Pages 3 and 5 were part of a nine page list which accompanied a 1981 letter from John Licata of Diamond Shamrock to Steve Tuckerman of Ohio EPA which I had copied from EPA files. The letter and complete 9 page list should be added to the RI/FS.

The nine page list was the basis for a Plain Dealer article (3/25/83, page 9-B) telling of buried tankcars of chlorinated solvent in this landfill. Page 3 included 30 drums and five cars of hexachlorobutadiene on 11/4/64. Page 7 included 57,136 gallons of "In Process CCl_4 Materials" without mentioning containers, and 144.7 tons of Chlorowaxes in 516 drums, both said to have been buried 8/17/70.

Hexachlorobutadiene and hexachlorobenzene were the main components of the high boiling waste from manufacture of tri- and tetrachloroethylene (solvents) by Diamond in Texas. A customer in Pennsylvania wanted all the hexachlorobutadiene we could supply so the crude material was sent to Diamond's "Semiworks" in Ashtabula for distillation to purify it for sale. The customer's project failed, so he cancelled the order and refused material in transit. About 195 drums of hexachlorobutadiene and its distillation bottoms, equal to another tankcar, were buried here. This makes the total about six tankcars (60,000 gallons).

The RI/FS says the carbon tetrachloride plant closed at the end of 1976, and the Chlorowax plant closed in June, 1977. I find it hard to believe the "In Process CCl_4 Materials" and the large amount of Chlorowaxes were buried before those Plants closed. (The time of these burials may not be important because the two Works Managers and Diamond's chief geologist during the burials are all dead.)

Al Rosso, who drew the map of burial plots in 1968, still lives in Painesville. He might be able to help you locate the large tanks.

Integrity of the Site

Your May 29th letter said Ohio EPA has no reason to believe VOCs from the Site are currently entering Lake Erie. I say there is no reason to believe they are **not** entering the Lake, because nobody has tested lakewater near the site for VOCs. My findings of acidity near the Site lead me to believe VOCs from the Site **may** be entering Lake Erie. There is a need for testing to determine whether they **are**.

I believe the RI/FS proposed test of the top two feet of sediment in five core samples thirty feet offshore is not as good as testing the last two feet of sediment or clay above the Chagrin shale bedrock at those locations. (Where the lakeshore bluff is eroding rapidly, those upper sediment samples would consist mainly of coarse sand and gravel that was mixed with clay in the face of the bluff a year earlier.) Neither seem as good as testing a water sample from near the bottom, farther offshore, where there is only a little unconsolidated sediment above the bedrock. Any such water samples should be compared with simultaneous samples taken a greater distance from the site, to help identify the sources of any VOCs found. Ideally, the distant samples should be from nearby potable water plant intakes, and the detection limits of the VOC analyses should be improved from the routine 1 ppb to a part per trillion to improve the chance of significant results.

Any samples taken close offshore should note whether they are taken inside or outside the line of any nearby metal piling. Diamond installed a lot of interlocked sheet metal piling along the Plant's shoreline during the 1950's. Some may be entirely underwater now.

I believe VOCs may be entering the Lake because:

1. Diamond reported burying about 1.5 million pounds of chlorinated solvents, which are included in the VOC assays of water plants, here. These solvents are much denser than water, and generally regarded as insoluble in water, but are soluble enough to make the water toxic. They would be expected to migrate downward and with groundwater, eventually reaching the Lake.

2. I found acidic water, believed to have come from the site, at the west end of the erosion barrier, twice in the spring of 1995, and reported it to you. This indicates aqueous waste, carrying hydrochloric acid from hydrolysis of chlorinated materials, is probably breaching the containment, and carrying dissolved VOCs. Nonaqueous waste may also be breaching the containment.

3. The RI/FS Work Plan includes data which also indicates leakage from the site. Appendix A, page A-2, gives analyses of water from inside and outside the slurry wall. The site contained a significant amount of barium chloride because the catalyst used to prepare chlorothalonil fungicide (DAC 2787) was 27% barium chloride on carbon. The barium content of samples from west (EW1), south (EW3), and east (EW5) wells inside the slurry wall, are all higher than the corresponding wells outside the slurry wall (MW6, MW1, and MW2), confirming the source is inside. (If this migration of barium occurred before the slurry wall was built, most of the barium outside should have washed away or been insolublized as barium sulfate, and not show in the analysis. Note that the three highest sulfate assays are from the samples with the least barium. Also, if barium leaked before the slurry wall was in place, VOCs may have leaked out then too.

About 900 removable head 55 gallon drums, each containing about 300 pounds of offspec chlorothalonil fungicide (containing up to 3% catalyst) and/or its precursor, isophthalonitrile, were buried here, usually on their sides. Spent catalyst was also buried. The loosely filled drums may have been crushed, popping their lids off and exposing the barium chloride to leaching by groundwater; I speculate that this would have begun soon after burial. (This reduces the number of drums which might work their way up out of the ground (as at Love Canal) if the site is not adequately dewatered or float low in the water and be a hazard to speeding boaters if they should get into the Lake intact.)

The Lake VOC Project

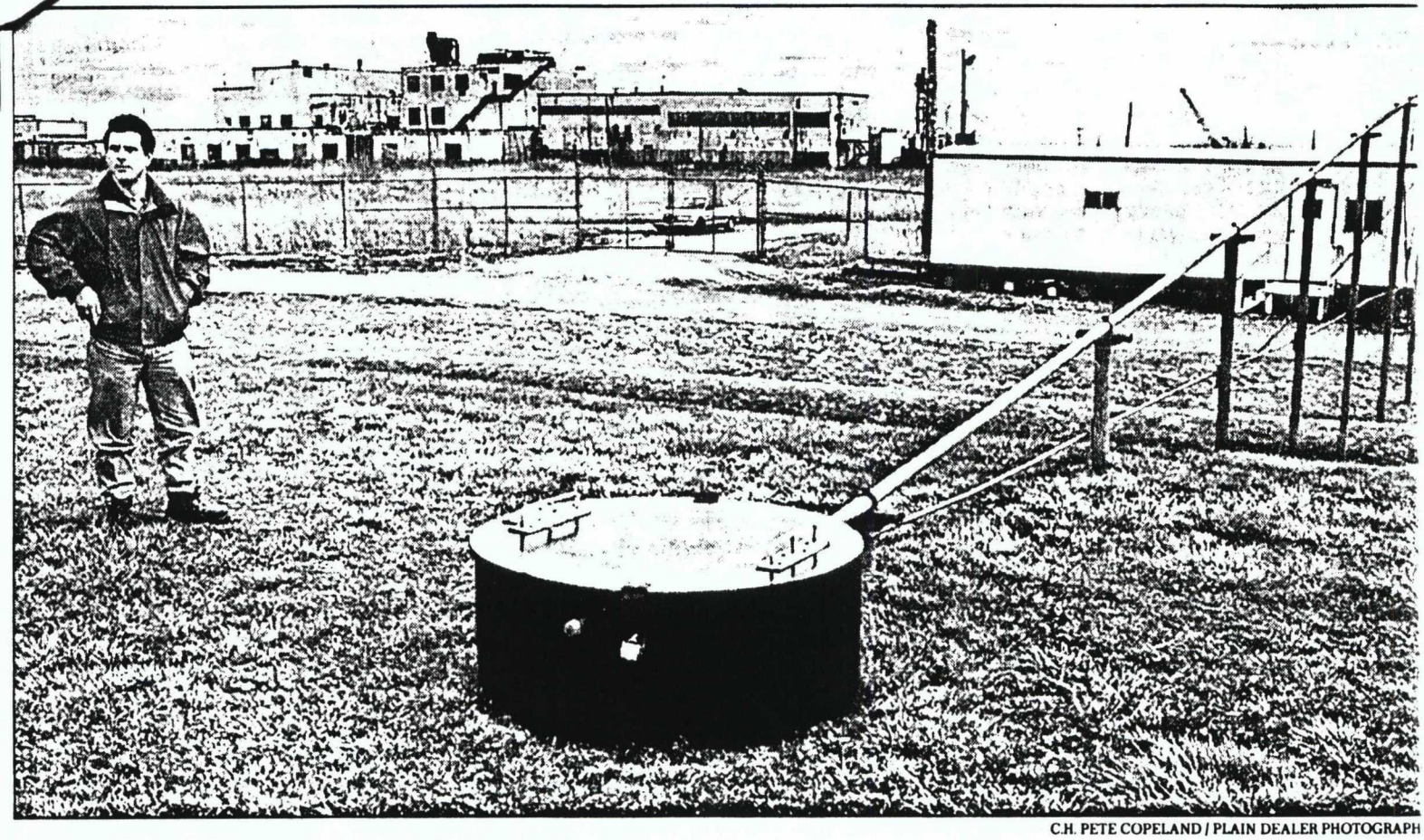
As I told you in a 5/19/97 letter, I tried to initiate sampling of Lake Erie water near the One Acre Site in August, while the Lake was warm. I wanted to get a VOC (volatile organic compound) analysis for comparison with similar analyses of raw water from the intakes of Lake County's Bacon Road Water Plant and Painesville City's Water Plant. The managers of both water plants and the Lake County Sheriff's Lake Patrol agreed to cooperate in this testing. (The water plants were to pay for their samples, but I might have had to pay $200.00 for the third sample.)

This sampling was not done because the Bacon Road Plant manager's superiors spoke with the County Health District and OEPA, then ordered him not to participate.

Sincerely,

Non-responsive

Att 12



C.H. PETE COPELAND / PLAIN DEALER PHOTOGRAPH

Joseph H. Phoenix, site coordinator for Maxus Corp., stands near a 1-acre hazardous waste landfill near Lake Erie in Painesville Township. The company built a barrier to keep erosion from washing the chemical-filled containers into the lake.

Restudying lakeside peril

Ohio EPA wants to re-examine hazardous chemical dump buried on 1,300 acres to see whether a cleanup is needed

B1 4/10/95

By JOHN C. KUEHNER
PLAIN DEALER REPORTER

PAINESVILLE TOWNSHIP — Concrete wave buffers shaped like children's jacks and armor-type boulders hold back a potential environmental threat to Lake Erie.

Perched near a sloping bank less than 100 feet from the lake is a hazardous-waste landfill where Diamond Shamrock Corp. buried chemicals from 1963 to 1970. Some of those chemicals are known to cause cancer and birth defects.

The company built the massive barrier six years ago along 850 feet of shoreline to keep the landfill's chemical-filled drums, cans and cartons from washing into the lake.

Just to the east, large sections of bluff have been swallowed by Lake Erie.

Federal and state environmental officials have been monitoring the Diamond site for years. Besides the hazardous chemical dump, the area has seven sludge-waste lagoons, totaling more than 860 acres, that sit along the Grand River. Among the chemicals buried in the waste lakes is hexavalent chromium, a known carcinogen.

While some of these waste lakes and basins were sealed, the caps do not meet current state or federal standards and are releasing contaminants into the river, according to the Ohio Environmental Protection Agency.

Now, 18 years after the former industrial complex shut down, the Ohio EPA is negotiating with 33 potentially responsible parties to pay for a study of 1,300 acres of the Fairport Harbor and Painesville Township site. The Ohio EPA wants a full study done of this area to determine what is there, if there are problems and if a cleanup is needed.

"We have enough data to know we need more information," said Teri Phillips, the Ohio EPA's site coordinator. "We expect to find areas that are real dirty and others that are not."

The U.S. EPA proposed placing the Diamond plant site on the Superfund list. The Ohio EPA, exercising its authority, is proceeding with enforcement and negotiations.

Since 1980, the Ohio EPA has known more about what is buried in the chemical-waste landfill than in the other disposal sites because of a nine-page list supplied by the company.

Drums of solvents, pesticides, organic chemicals, acids, bases and heavy metals were buried in the site, which measures about 200 by 200 feet, according to the site inventory.

SEE ~~STUDY/2-B~~
(OVER)

EPA wants to re-examine chemical dump

E PLAIN DEALER
OR LITERACY NEWS
iday, May 12, 1995
Renaissance Cleveland Hotel
Gold Room, Noon

HERYL SHELTON

uminating Co. will sponsor
helton, an English/journal-
er at Glenville High, in The
aler's corporate Bee for
benefit Project: LEARN.
n is a reading specialist and
t of curriculum writing and
ent, but she still doesn't
s a super speller. She is
on her teammate Don
Channel 5's weather
help her through the rough

loves to read historical

STUDY FROM 1-B

The list shows hazardous chemicals that are carcinogens, cause mutations and are flammable and explosive, Phillips said.

Diamond Shamrock shipped the wastes to the site from its technical center in Concord Township and other company research facilities.

Shoreline erosion and the potential for the release of the landfill's toxic contents is of major concern because of the impact on drinking water, Phillips said.

"If that stuff gets into the lake, we're in trouble," Phillips said. "We don't want to get to the point where we have barrels and contaminated soil falling into the lake. That's definitely an area we have to focus on."

The list shows five railroad tanker cars of hexachlorbutadiene, a suspected carcinogen, buried in the thick clay soil. The tanker cars, along with five drums of the chemical, were buried in November 1964, according to the company list filed with the EPA in 1980.

But company officials dispute the listing. Magnetic testing for the tanker cars has been negative, said Joseph Phoenix, site coordinator for Maxus Energy Corp., a successor company to Diamond Shamrock that has responsibility for the site.

"The concept of five buried tanker cars doesn't make sense," Phoenix said. "How can five tanker cars fit in in addition to all the waste that's here?"

In response to an EPA information request, Diamond Shamrock said in a September 1980 letter that "the term 'car' is probably a typographical error, as there was no physical way to bring a railroad tank car to the site."

Waste was buried in an orderly fashion to a depth of 30 feet, Phoenix said. A railcar measures about 85 feet by 15 feet by 15 feet. Railroad tracks end west of the site and across from Fairport Harbor Nursery Rd.

"It physically doesn't make sense," Phoenix said. "We have zero documents that a railroad car was put here. We have found no one who has seen five tanker cars buried here."

Maxus covered the site with 3 feet of clay, and its grass cap slopes so rain washes off to the side. Five extraction wells were sunk to pump all water that drains into the landfill to the surface. The pumps are drained of about 6,000 gallons each 11 times annually. The water is hauled to Buffalo, N.Y., where it is treated.

Outside the landfill are six monitoring wells, which have not shown evidence of contaminants.

"The way we look at it, it's a closed area," Phoenix said. "It's somewhat state-of-the-art and should be left here."

The company undertook the protective measures to "forestall the future development of problems at this site, not to remediate any present environmental problems," according to a 1987 letter. "Our studies, submitted to you, have shown there are no significant environmental releases now occurring at this site, nor are any imminent."

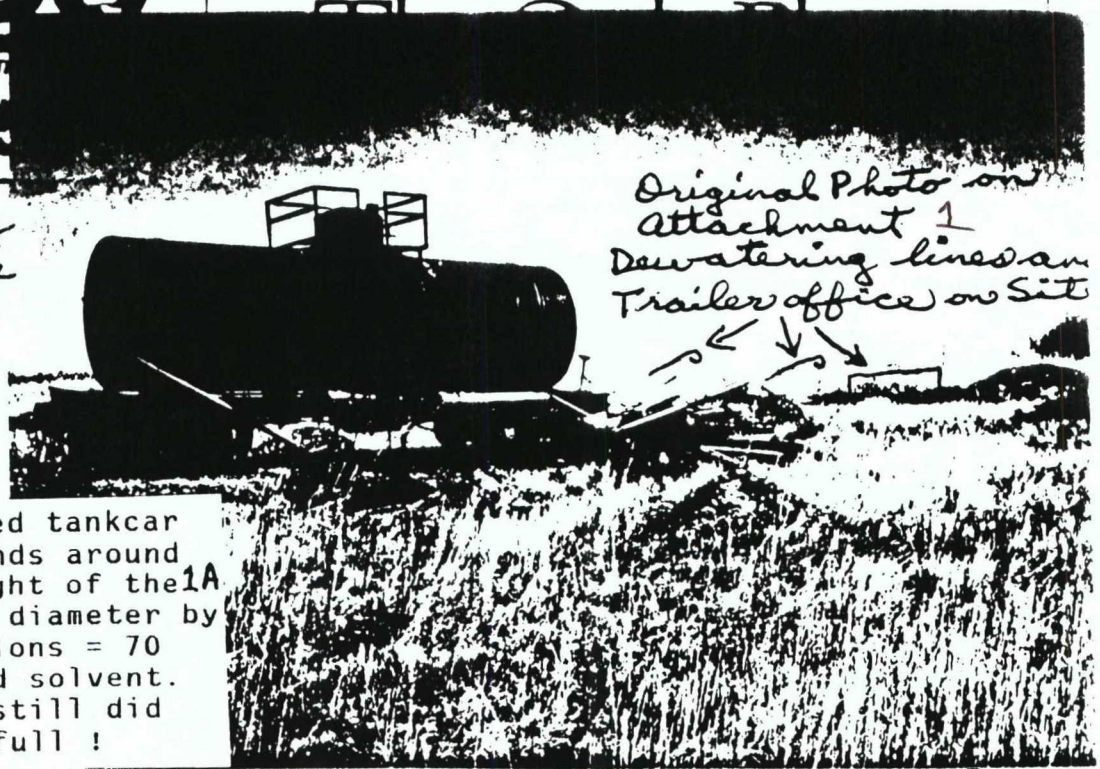
Besides Lake Erie, health and environmental officials are worried about chemicals leaking into the Grand River. A 1987 Ohio EPA biological and water study of the Grand River found that water quality changed significantly downstream from the Diamond Shamrock waste lagoons.

Investigators collected eight fish samples last year and found three samples contained low levels of chromium, said Tracy Shelley, chief of the health assessment branch for the Ohio Department of Health. Tentative calculations showed levels were not high enough to warrant an advisory, she said.

Shelley said she will recommend that further sampling be done to characterize the fish contamination in the river so that the risk to people can be determined.

"What we saw here is typical of what we see in most rivers in the state," Shelley said. "I don't know if that's good or bad."

(OVER)



* 30, not 5, on same day and about 165 more on other days.
— R. Bimber
11/17/97

Original Photo on Attachment 1
Dewatering lines an
Trailer office on Sit

This old riveted, corroded tankcar with four reinforcing bands around the tank, is still in sight of the Site. Its tank is 8 feet diameter by 28 feet long (10,000 gallons = 70 tons of dense chlorinated solvent. As of August 1997, OEPA still did not know whether it was full !

1A

Attachment 13.

THE PLAIN DEALER, FRIDAY, MARCH 25, 1983

(1983)

2 Painesville Twp. dumps under scrutiny

9-B

By Karen E. Henderson

Two hazardous waste sites in Painesville Township in Lake County are drawing the scrutiny of Sen. Howard M. Metzenbaum, D-O., and the U.S. Environmental Protection Agency (EPA).

A spokesman for Metzenbaum said yesterday the senator plans to investigate what is being done to control or clean up the sites, and an EPA official in Chicago said the agency is considering having them placed on the list of sites eligible for cleanup with Superfund money.

The announcements followed a story published Saturday in The Plain Dealer that disclosed the potential danger the sites pose to Lake Erie.

Richard Woodruff, a legislative aide, said Metzenbaum wants to know why the sites were not on the Superfund list.

Ohio EPA officials had requested the sites be placed on the list, but the federal EPA determined last year that the priorities were not high enough, saying chemicals in the sites were contained.

Tore Stole, U.S. EPA environmental protection specialist in the Chicago office, said his office would begin collecting records on both sites and probably make on-site inspections.

A one-acre, fenced-in dump site north of the former Diamond Shamrock Corp. plant on Fairport-Nursery Rd. has thousands of pounds of highly toxic chemical waste buried in drums, boxes and even railroad tank cars. !!

Deadly chemicals in the dump cover a single-spaced list nine pages long. Some are so exotic they do not even appear in normal chemical reference listings.

Five tank cars contain hexachlorobutadiene, a highly toxic chemical, and others contain carbon tetrachloride, a banned carcinogen.

The site, owned by Diamond Shamrock and used from 1963 to 1970, is less than 50 feet from the bank of Lake Erie. A seawall, built by Diamond to prevent erosion, is sagging and could collapse, unleashing chemicals into the lake.

The second site is the former IRC Fibers Co. dump off Bacon Rd., used from 1939 until 1972. This site is less than .8 of a mile from the lake and was built on a stream that flows into the lake.

Ohio EPA officials admit the stream is already polluted, but at a low level. Officials said they do not know the contents of the site, but will request more information from the owner, the American Cyanamid Co.

Stole said the only chemical listed on a notice filed by American Cyanamid with the federal EPA was 15.5 pounds of mercuric oxide. Gary W. Gifford, Ohio EPA environmental scientist in charge of the site, said tests show a higher than normal concentration of zinc, but no evidence that mercury is leaving the site.

The site covers more than five acres and has thousands of rusting drums covered with fly ash. Former IRC Fibers employes said the site contained a variety of chemicals, including quantities of sulfuric acid, benzine (a carcinogen) and potassium hydroxide.

Officials of Diamond and American Cyanamid said they will do whatever is necessary to protect the sites and the environment.

Att 14

Should we care about one PPB of water pollution?

Toxic water pollutants are often measured in parts per billion (PPB). Many scientists believe a single molecule of a toxic substance **can** cause a toxic effect, such as cancer, but the probability is very small. A single molecular causation might be corrected by the body's defenses or take decades of biological replication before the toxic effect was detected. At the PPB level, we can calculate that there are many billions of molecules of toxicant in a single drop of water; toxic effects become far more probable, and are likely to be observed sooner.

First, we calculate the approximate number of molecules of water in one drop from Avogadro's Number (6.02×10^{23}), divided by the molecular weight of water in grams (18), and multiplied by the weight of a drop of water in grams (about 0.05). The answer is 1.7×10^{21}.

Then we can calculate the approximate number of molecules represented by one PPB of pollutant in a drop of water by dividing the previous answer by 10^9 (for PPB) and then multiplying by the molecular weight of water and dividing by the molecular weight of the pollutant. One PPB of carbon tetrachloride (CCl_4, MW=153) represents about 200 billion molecules of CCl_4 in one drop of water. One PPB of polychlorobiphenyls (PCB) or tetrachlorodibenzodioxin (TCDD or simply Dioxin) would be about 100 billion molecules in a drop of water. In terms of possible biological effects, one PPB is a large amount!

The sweet taste of saccharin can be detected at 35 PPB in water, and the odor of ethyl mercaptan can be detected at 0.02 PPB in air (Merck Index, 12th Ed.). We should not be surprised to find additional biological effects at the PPB level.

Drinking water from surface water sources, such as Lake Erie, even after treatment in a state of the art water plant, are likely to contain many toxic pollutants at the PPB level. Most of the pollutants of concern are chlorinated organic chemicals which can be removed with a charcoal filter. I use a charcoal filter to purify the Painesville City water going to the cold water tap at my kitchen sink, and change the cartridge about every six months. I recommend a charcoal filter to anyone concerned about the purity of their water.

Non-responsive

Non-responsive